

JANUARY, 1961

ARMED FORCES

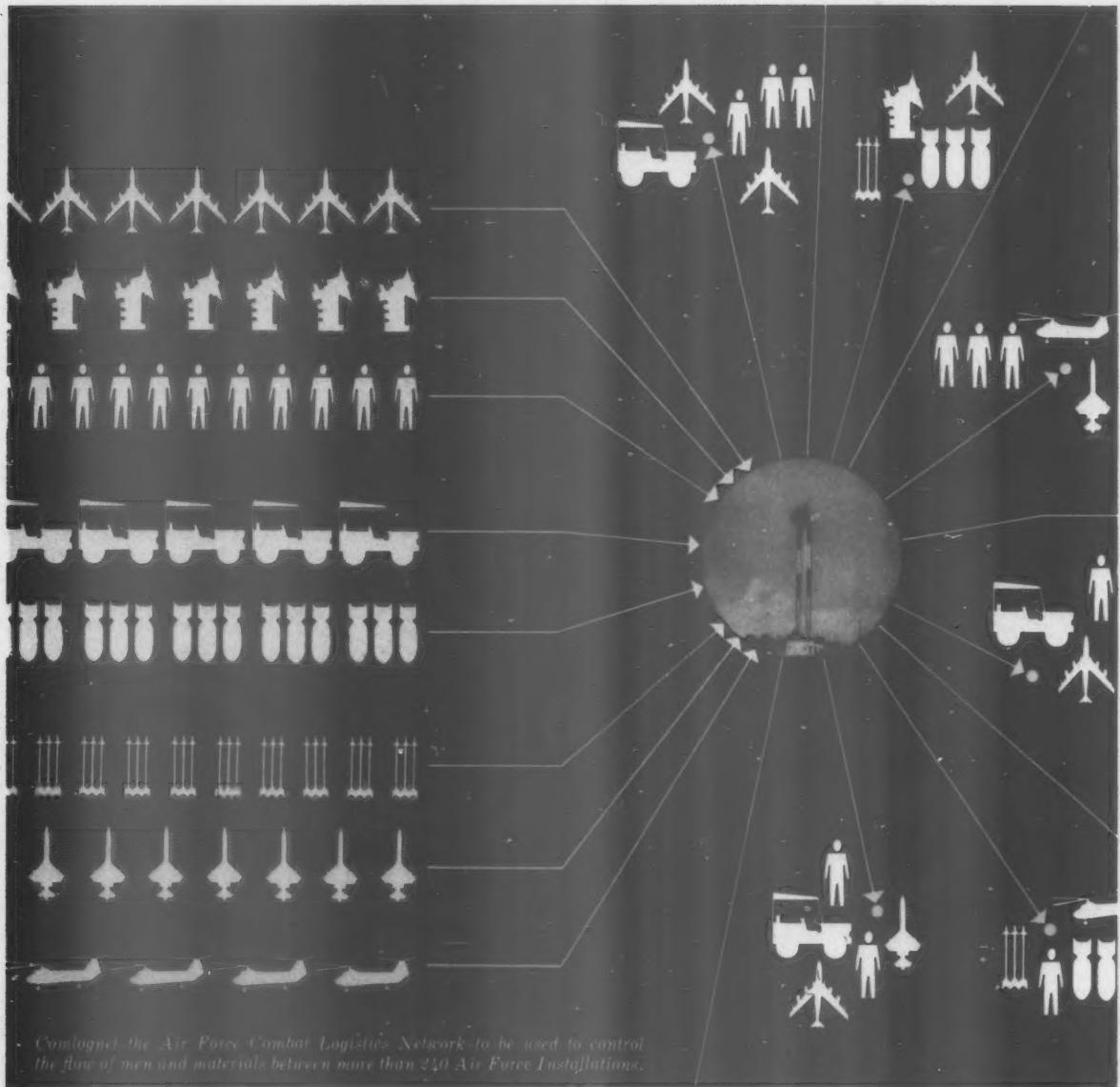
Management

PUBLISHED FOR THE MILITARY SERVICES OF THE FREE WORLD



M. Gen. Donald Monda Yates

Better Management For Missile Ranges . . . 15



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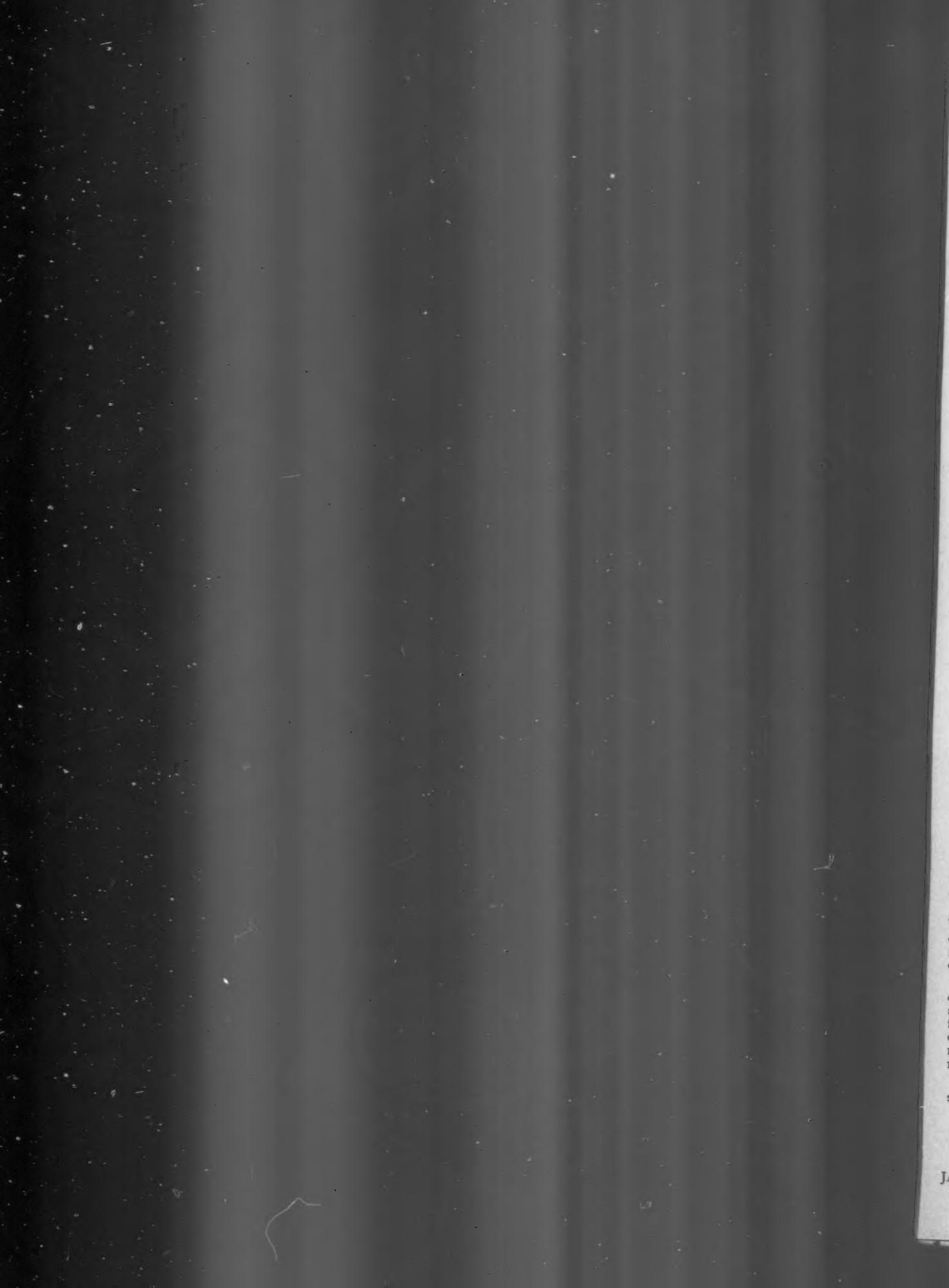
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**BELL TELEPHONE
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STEERS TIROS II INTO
CIRCULAR ORBIT**

**Latest Experimental Meteorological Satellite on Course,
Thanks to Bell Scientists—to Aid in Weather Forecasting**

THE DAY of operational weather satellites is one step closer with the orbiting of the National Aeronautics and Space Administration's Tiros II.

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But despite its many instruments—TV cameras, tape recorders, solar cells and antennas—Tiros II would not be as useful if it were not in a nearly perfect circular orbit, made possible in large measure by the Bell Telephone Command Guidance System.

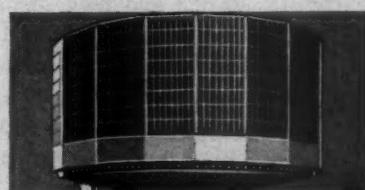
To provide accurate weather data, the satellite must be at an almost uniform

distance from the earth at all times. Tiros II's orbit varies within extremely narrow limits as it constantly circles the earth.

Our Command Guidance System for the Tiros launching vehicle is a result of research and development by Bell Telephone Laboratories and production by Western Electric. This amazingly accurate system has scored many other successes in America's space program.

It has guided the successful Air Force Titan ICBM firings, and it helped make possible the first nose cone recoveries after flights of ICBM range. It also guided NASA's Tiros I and Echo I into their carefully planned orbits, and will be used in other forthcoming space probes and satellite launchings.

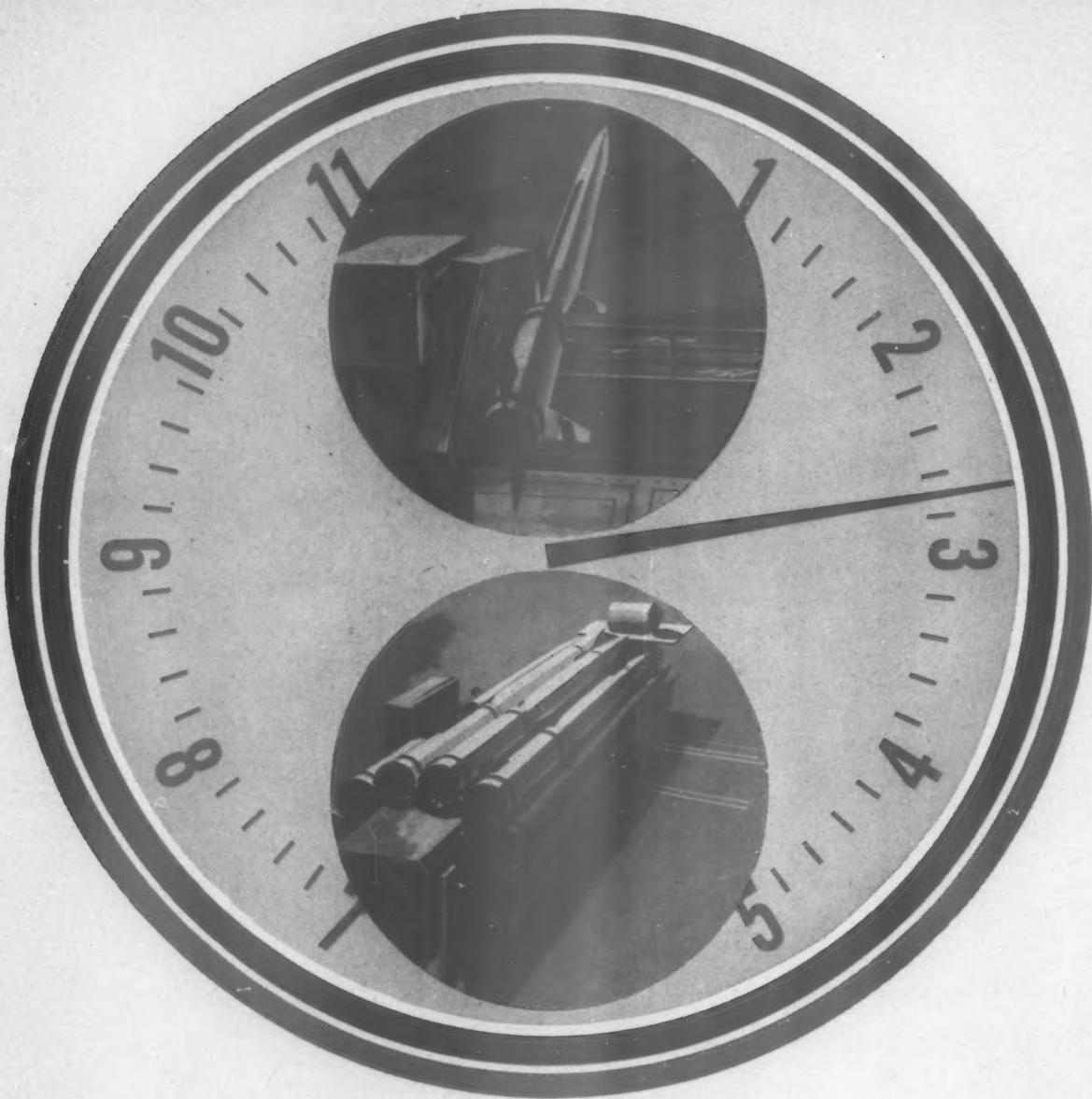
This Command Guidance System is one of a number of ways the Bell System is participating in the nation's space effort. The skills and knowledge called for in this pioneering activity are important assets in the country's defense.



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ARMED FORCES

Management

PUBLISHED FOR THE MILITARY SERVICES OF THE FREE WORLD

JANUARY, 1961

Volume 7—No. 4

FEATURES

- Better Management For Missile Ranges 15



Defense Department has come to see the need for a new way of handling their voluminous and growing missile range business. The reason: too many fires to put out, not enough time for long range planning, or for developing a standard approach to a set of diverse problems. Sitting in the catbird seat is Lt. Gen. Donald Norton Yates, Deputy Director for Ranges and Space Ground Support under DDRE. These are the problems, and the direction that the new approach will take.

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Capability in Power and Mobility for defense

Problem:

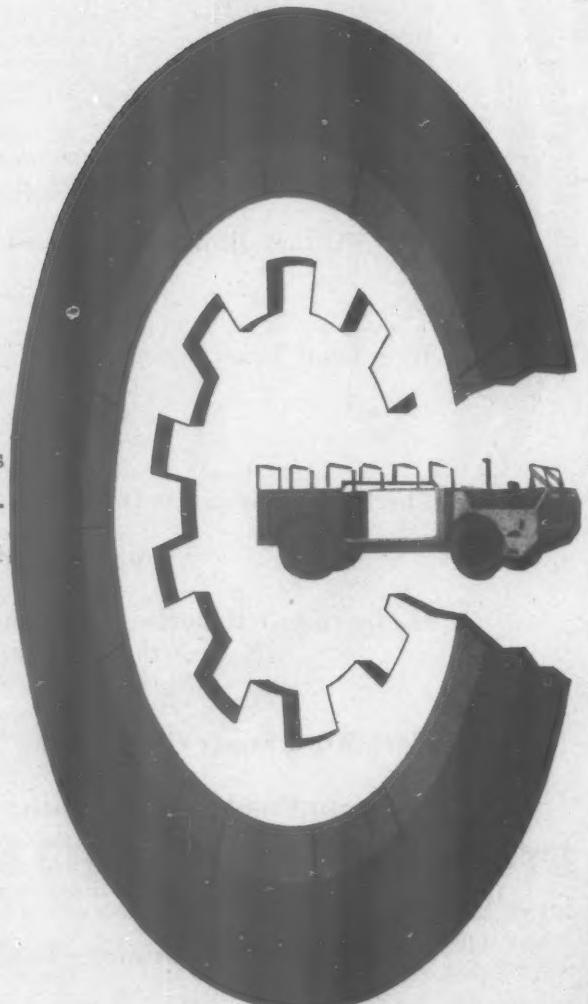
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GENEVA

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St., GRevener 8356

Dallas, Tex.

202 Wynnewood Professional Bldg., WWhite-

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208 Almeria Avenue, Highland 4-8326

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Jean-Marie Riche, 11 Rue Condorcet, TRU

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Wayne W. Parrish

President

Leonard Eisner
Vice Pres. and Gen. Manager

Fred S. Hunter
Vice Pres. and Editorial Dir.

*

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Picking Top Talent

IN HIS STATEMENT accompanying the report of the President's Commission on National Goals, Commission Vice Chairman (and General Dynamics Board Chairman) Frank Pace, Jr., felt this was the most important thing he could say about what needs to be done in Defense:

"Clearly in so vast and complicated an area there are opportunities for improved administration and important savings and these must be pursued vigorously. There are, however, three other areas that have commanded insufficient general attention and that are vital:

"The first is the encouragement of revolutionary new ideas in weapons systems. Our greatest strength in our country is the free flow and interchange of new ideas. It is our best means of staying ahead of the Communists. Every effort should be made to encourage new approaches and to reward those who generate them. The lessons of the past are important, but clinging to the past is impossible.

"The second is incisive selection at the earliest practical time of a new weapons system. In a period of enormous technological change, the variety of possible choices is so great that the selection process is most difficult. Responsibility for the selection must be clearly identified and centered in one place. Even recognizing that mistakes will inevitably be made, but this still represents a lesser danger than that of pursuing too many programs inconclusively.

"Finally, I want to emphasize the all-important problem of the time lag between the conception of a great idea and its production as a weapons system. Concentrating as we have on dollar savings, we lose sight of the fact that obsolescence through delay is the most costly single factor both in terms of dollars and the national security. The Department of Defense working intimately with the Congress in centering attention on improvement in this area can make a unique contribution."

In sum, a man tied to the Pentagon closely for over 10 years says Defense top management needs the most attention. And, in setting some goals for them, he intimates (in the kindest possible language) that the military decision-making process moves far too often with molasses-like slowness.

We do have a handful of Trudeaus, Raborns, and Schrievers, of course, who puncture the Pentagon's negative acting putty with impressive regularity. But there is plenty of administrative and technical ability elsewhere in the military structure. And a good deal of the management lag can be found in these individuals themselves—in their apparent willingness, as a general rule, to complain privately, but not fight bitterly against, the mass of milque-toasts in high places who would rather bluster noncommittally than take a chance on being wrong.

AND THIS HAND-SITTING has been encouraged not only by Congressional overmeddling but by the spotty performance of the civilian hierarchy in the military itself. While quite a few political appointees have turned out to be top notch (Secretary Gates among them), a great many have been just average and a handful have flopped miserably. Even while they, more easily than any other group, could see to it that Pace's three vital areas get something done about them.

There is a new opportunity to put a top notch team in control of defense administration. No one member should make the roster until he had indicated quite clearly that he supports Pace's goals with utmost conviction.

Defense executives, in or out of uniform, have every right to expect, and (out of deference to their own individual capabilities) every authority they need to insist that the new officials be top talent and not merely important sounding names collecting on political favors.

Bill Borklund

The



The mystery of radiation in space



Before man can safely travel into space, we must know more about the radiation he will encounter there. What kind it is. How much there is. Where it is.

A tiny Hughes radiation detector, housed in this electronics assembly, answers these questions. It is the most advanced detector yet developed—a thousand times faster reacting, smaller, more rugged than any other.

Hughes detectors such as this, reporting back from outer space, have already provided information vital to our Man in Space programs. Because of their small size and high sensitivity, Hughes detectors can do many scientific, industrial and medical jobs impossible for other devices.

They can give foot soldiers an instant means of warning against harmful radiation. They will find many uses in medical research and cancer treatment. They are invaluable for controlling atomic reactors—as well as for process applications such as flow measurement, thickness gauging, liquid level measurement, oil well logging and others.

Hughes radiation detectors are a product of the Hughes Nuclear Electronics Laboratory—specialists in the generation, detection, handling and analysis of radiation.

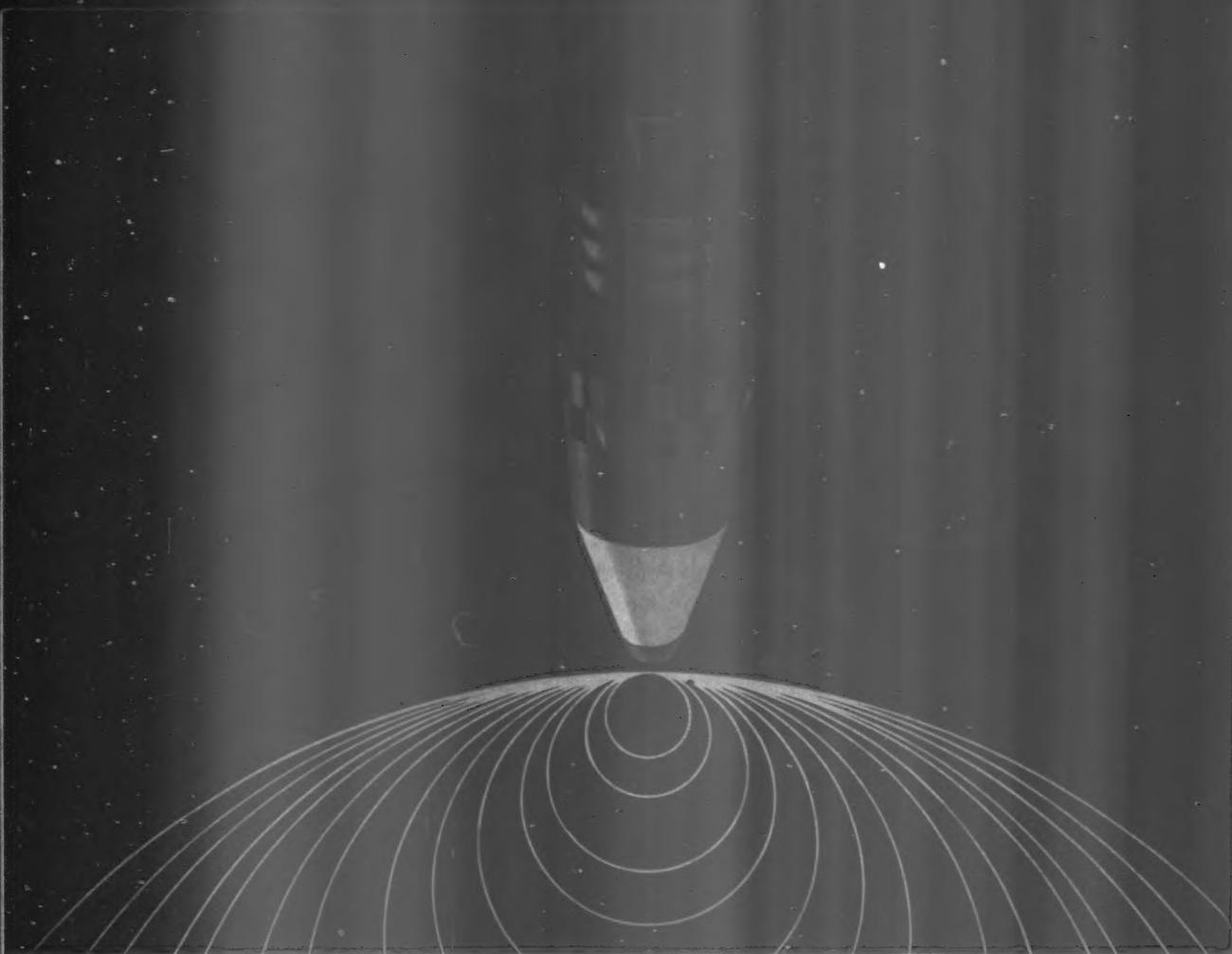
In addition to the measurement of radiation in space, other Hughes space-oriented projects include satellite communications systems, radar and infrared detection systems, ion engines, lunar landing systems and space vehicle guidance systems.

Hughes advancements in the state of the electronic art are based on foresight, imagination and proven management capability. The reliability and operational capabilities of Hughes systems have earned them the confidence of users throughout the free world.

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Washington Background

The New Year: What's Ahead

Reorganization is probably the most frequently heard single word in the Pentagon since the selection, and will probably continue to be for a good while to come.

Nor does this mean that only the Symington proposals are involved. To the contrary, Symington's report seems to have received a fairly cool reception from most quarters. The why of it: although many of the proposals set forth are needed from a purely logical standpoint they are, politely, "politically inexpedient."

What remains to be seen: how Kennedy will move on Defense, with or without Symington in mind. One so far unknown factor: what the new Defense Secretary will want to do, and how closely—on detail—he will work with Kennedy.

More to the point: With or without anything else, Air Force has plans to overhaul its Air Staff. The aim: to bring Air Staff in line with its management functions, rather than to hold fast with the "command" type alignment currently in effect.

The one sure factor seems to be that "McNamara's Band" is in for a rapid rise on the Defense Department hit parade.

How Many New Faces?

The normal change-of-administration turnover of personnel may not be as sweeping this time around as it has been in the past.

There seems to be a growing feeling among the men who know the Pentagon and its job best that there is no easy way to build an experienced top echelon management corps, that perhaps more continuity than currently exists would be advantageous.

One example: the comment by one top-level Civil Service employee that "I can't help feeling the new administration should think carefully about accepting resignation from Dr. Herbert York. He knows his job, and more important has created momentum that it would be a shame to lose."

The hooker here is that Dr. York may resign before the new administration comes in for reasons of health. Whether or not this is an issue that will actually come up is of course, highly debatable—the point is that you can't buy experience, and experience is sorely needed.

Overseas Families and Morale

One item that the new President is going to hear about soon after he takes over is the order limiting dependents overseas, with a less than likely chance of its being rescinded.

Where the effects will show up: first, with first termers, men with the end of their first hitch coming up; second, with older men who aren't sure about going for more than twenty years.

Either way, it will hurt the military personnel picture. As one Pentagon field grader put it, "In spite of what stands to be gained on a deal like this, the military always gets it in the neck—we simply can't squawk like, for instance, the importer industry could."



RCA announces... A New Direction in Lease Plans for Electronic Data Processing Equipment

RCA now offers a choice of *four* new lease plans that permit you to rent RCA Electronic Data Processing Equipment, and all the guidance and service that goes with it, *on a basis geared to your own particular usage requirements*. This major departure from customary leasing practice is another RCA innovation . . . an indication of RCA's responsiveness to the customer's needs.

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Washington Background

DEPENDENTS TO COME HOME

The Armed Services can almost expect a decrease in re-enlistments as a result of the order issued by President Eisenhower to bring service dependents home from overseas bases.

This move, aimed at cutting the outflow of U.S. gold, is expected to hit heavily on the morale of troops overseas. One probable advantage however, is the flexibility of some combat units may be increased by the move, and in case of war, the evacuation problem would be simpler.

Another drawback to the move is the loss of the dollar revenue to our allies, which has already stirred up considerable amount of controversy.

Some expected difficulties for the services that may arise out of the order are: greater rate of turnover, less effectiveness, more costs for travel of uniformed personnel, and an increase in disciplinary problems.

STRATEGIC COMMAND NEXT?

The first report of Air Force Gen. Thomas S. Power's Strategic Targeting Committee was probably high on the agenda for the top-secret unified commanders' conference held at Offutt AFB, Omaha, early this month.

Named in mid-September to head the targeting group, Power was due to submit his first report "by December," Defense Secretary Gates said in announcing his appointment. The move was generally regarded by Pentagon observers as a flat renunciation by Gates of a new "Strategic Command" that would exercise control over both Air Force SAC planes and missiles and Navy's Polaris.

With the operational readiness of the Polaris system and a change of administration voted in the interim, some military experts are speculating on how long Power's committee of 40 top officers, drawn from all armed services, will continue to function in its present form.

Many see a tendency for the new administration to lean toward formation of just such a strategic command as Gates avoided in naming the targeting committee.

Although Air Force currently wields the bulk of U.S. striking power, this situation could change if the years-ahead Polaris program progresses to the point where it is the nation's top missile deterrent.

Whether or not a unified command is developed, combining direction of both SAC and Polaris strike capacity, some observers foresee the possibility that a Navy officer might direct overall target planning at some future date, regardless of the proposals by Sen. Stuart Symington.

DOD REORGANIZATION PROPOSED

Sen. Stuart Symington's (D.-Mo.) proposal for Pentagon reorganization will be aired before Congress during

the next session. Pro and con "single-servicers" will also get a long-awaited chance to air their views.

The Symington proposal lists these (in part) as key Defense Department changes: elimination of the present departmental structure of the services—preserving the military services as separate organic units within a single Defense Department.

This would do away with the present departmental Service Secretaries and their Under and Assistant Secretaries, fifteen in all. The JCS becomes the Joint Staff with members being senior officers from the different services completely separated from their respective services, never to return again.

Symington says that his plan, if adopted, will save about 20% (\$8-billion) of the annual defense budget. Pentagon observers are studying this statement, trying to determine where this money will come from.

He also said that savings gained from better management and analysis of weapon systems proposed under this plan would have to be "plowed back" into the military program to compensate for rising costs.

He declined to say how big he thought the defense budget should be to provide his standard of quick reacting returns, but he questioned that it could remain at the current \$41-42-billion level.

He said however, that the main goal of reorganization is to save reaction time, not dollars. Symington contended that waste stems from a lack of understanding in the Pentagon of the "mutations" in the military weapons field.

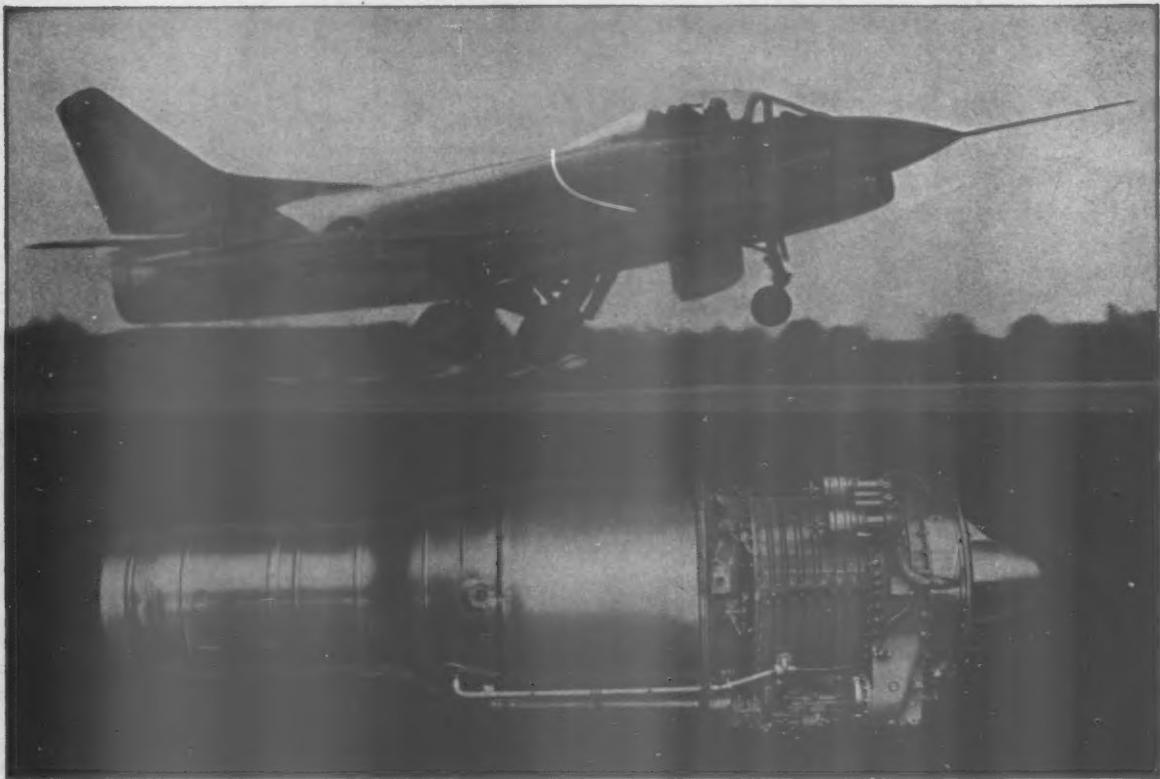
ARMY WAGING TWO CAMPAIGNS

Army Aviation seems to be caught between a two-way problem: first, they're not getting enough young lieutenant applications for the Army Aviation Training Program, and second, DOD says Army has to cut over 500 officer and warrant officer aviators from their roster from January 1 through June 30, 1961. This puts the maximum number of rated flyers at 6,438.

Army is waging a campaign to recruit more applicants for aviation training. Several factors will cause a decrease of approximately 350 qualified applicants during FY 1961 unless the interest of other qualified lieutenants is rekindled and application rates are increased accordingly.

In October 1960, Army began a three-phase program to bring the number of rated flyers within limits set by DOD. A change in the flight training curriculum will reduce the number by approximately 150 during the restricted period.

Flight Status Review Boards will screen Army aviators and suspend those whose performance falls below the necessary minimum for remaining in the Army Aviation Program. FY 1961 boards have already suspended 25 aviators who were unable to meet the standards.



ORPHEUS 803

Orpheus turbojet delivers 5,000-lb thrust for a 6:1 power/weight ratio—already powers 5 aircraft types in production

The design philosophy behind the Orpheus family of engines was based on two conflicting requirements—extremely light weight and exceptional reliability. That these requirements were successfully reconciled is shown by the fact that the Orpheus already powers no fewer than 5 types of aircraft which are in production, and is undoubtedly the most advanced medium-thrust turbojet engine in the world.

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The Orpheus family of engines has been proved in service in many aircraft and various versions power aircraft ranging from trainers and executive transports to research aircraft and lightweight strike fighters. The last category includes the Fiat G 91, NATO's standard strike fighter, powered by the Orpheus 803 (shown above).

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Better Management For Missile Ranges

Not enough long range planning, and an overabundance of daily fires to put out have created a bad situation in the missile and space range business. This is a rundown of the problems that have come up, and what is being done to get the programs back in line.

by Fred Hamlin



SINCE DEDALUS ran into coordination problems and Icarus flew too close to the sun, it seems to have been the lot of earthbound man to have trouble getting himself into the air in an organized manner.

The problems today really aren't too different from the ones that Dedalus faced—they're just more complex, more numerous, and compounded by the fact that, unlike the myth, the sun really isn't out of range anymore.

Getting off the ground—and where you get off the ground from—seems mundane in today's age of space. But from a realistic management standpoint, it is almost without question the most pressing problem in the current space situation.

And while it is a recognized problem, it is one that is a long way from final solution, and one that is going to keep many Pentagon managers up at night for a good while to come. Among the questions that have to be answered:

—What is the best way for Defense Department to meet the needs of all parties in the country interested in space/missile work?

—How can these needs be coordinated so that they can be fulfilled in the least expensive and most effective way?

—What is needed in terms of long range planning, and how can these needs best be met?

It is possible to get almost as many answers on these questions as the number of people you ask. Yet there could be nothing more fundamental to the future of the nation's space program.

There are a number of reasons that the foregoing questions haven't been graced with solid answers. But the most obvious is simply that immediate requirements for space launch and support facilities have cropped up too suddenly for the men concerned with them to do anything but put out day-by-day fires.

Not until last May, when the U. S. already had its first operational missiles on site, and nearly its first dozen

satellites in orbit was the first step taken to centralize Defense control of the Range and Space Ground Support operations.

In the services themselves, the organizational set up was only slightly better. Navy had only shortly before set up the Pacific Missile Range and Astronautics Division in Bureau of Weapons, Air Force was operating primarily through Air Research and Development Command, and Army was working through its Chief of Research and Development.

Chaos That Existed

The situation had gotten pretty well out of hand. When Lt. Gen. Donald Yates (see Pentagon Profile, this issue) moved to Washington from Cape Canaveral to become Deputy Director of Defense Research and Engineering for Ranges and Space Ground Support, he inherited a job that was much in need of being done—and one that had to be done in a hurry.

The programs of each service and National Aeronautics and Space Agency had been developed fairly independently of each other, and they tended to go their own ways, with little regard for what others did.

Perhaps more important, it was eminently clear that numbers of customers and numbers of projects involved would only become greater in the future. Thus, each interested party found itself faced with a more and more vital stake in the space ground facilities situation.

As surely as Dedalus and Icarus quarreled on who should be doing what, quarrels developed among the interested parties in space. Most spectacular of these disputes resulted in the so-called Burke/LeMay agreement, providing top-level compromise on use of the Pacific Missile Range.

What happened was this. Vandenberg Air Force Base and Navy's Pacific Missile Range are both located on a western extension of the U.S. continent just north of Los Angeles. For long range missile work, the area is desirable for several reasons—proximity to the missile industry on the west coast, open water for test safety, a clear shot at polar orbit.

Navy had been a-building for a number of years, had developed in the Pt. Mugu area a sizeable physical plant, well to the south of Vandenberg. Then, in February of 1957, came the Air Force with plans to make Vandenberg the nation's first operational ICBM base.

Operating under the concurrency concept, AF almost immediately began constructing its own launch and tracking facilities at Vandenberg.

In a sense, the Burke/LeMay agreement—which carefully delineated who was going to be doing what and carry what responsibilities on the west coast—was a logical forerunner for the eventual overall Defense Department move to control the range and space ground support area.

The specific problem was this. For geographical reasons, the general area was ideally suited for a number of space jobs. Competing for its use were two organizations—Air Force and Navy—and each had missions of the highest priority.

Air Force was interested in operational/training missile work, Navy was more concerned with research and engineering.

Both Navy and Air Force were pressed by their missions, were unable to see the forest of long range planning for the trees of immediate needs. Until somebody blew a whistle, and until the top Air Force and Navy brass sat down to reach some sort of working agreement, the situation was, to understate it, less than desirable.

Work Together

The outcome for the Pacific Missile Range looks something like this: Navy provided a nucleus of experience administrators from Pt. Mugu to get the ball rolling, used Air Force facilities at Vandenberg for their headquarters and point of operation.

The range itself is divided roughly by the Santa Inez River, with Navy's test and research facilities to the south, AF's training/operational set up to the north. That this line isn't firm offers one measure of the cooperation at PMR. For instance, on the Discoverer series—originally planned for Arguello—an unused Thor launch pad at Vandenberg was modified, thus saving building costs for a new facility.

This, or something like it is what will have to happen in the national space program, with all of the added complexities implied. It is significant that the national program encompasses the world—with 90° longitude being the outward boundary between Atlantic and Pacific Missile Ranges.

And besides Air Force and Navy, Army, National Aeronautics and Space Agency and private industry must be figured in. (Private industry is the latest entry into the arena, with International Telephone and Telegraph proposing to orbit a communications satellite under NASA auspices.)

In this light, the comment of one Pentagon officer is worth heeding: "I think sometimes that the last real long range planning in this field was done in 1949, when somebody staked out

Cape Canaveral. This was a couple of years before Atlas was even approved, and was probably done for all the wrong reasons, but I don't know where we'd be without it today."

If there is any single overriding reason for the establishment of a Deputy Director of Defense Research and Engineering for Ranges and Space Ground Support, it is probably this: Something was desperately needed to handle long range planning and coordination, leaving a full field force free to fight incessant day-to-day problems of running the big and burgeoning national space program.



First stage of the Navy's Vanguard Satellite Launching Vehicle being raised on its

One obvious measure of progress regarding NASA is summed up by Gen. Yates. "Through the Aeronautics and Astronautics Coordinating Board, we have an excellent working relationship with NASA. We meet three or four times weekly, and it's an excellent arrangement."

Commenting on this job, Gen. Yates has this to say: "To cure an ill, you take drastic action." Like the runaway stagecoach in the western movie, Yates' job is to pick up the lost reins, return them to a driver who can then regain normal control of the vehicle.

Once this is done, the job will almost certainly revert to the Assistant for ranges and space ground support, A. H. Wagonner, with Yates' post being abolished. The aim is not to build a czar for the space business, but rather to put the program on an orderly basis, so that can be handled in a more normal manner.

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One indication of this need for action is that the services themselves have moved to help themselves. Navy, for instance, has its range program under the direct control of an Assistant Chief of the Bureau of Naval Weapons—a Rear Admiral.

Air Force has only recently set up a new entity at Air Staff level to work directly with Gen. Yates in this area. One measure of the job, from an Air Force viewpoint, is the statement of the Colonel in charge of this office:

"We think our organization is good, although it can certainly be strengthened. We are able to serve as a buffer

Gen. Dick and Gen. Trudeau. There, we probably run into our greatest coordination problems because of the set up of the Technical services, and the split responsibilities that result from this."

(Navy's organizational problem is minor—in direct ratio to the part BuShips plays in the overall program. The comment of one Defense level executive is perhaps an indication of what can be done to clear up the Army situation: "From our point of view, the more power to make a decision that Gen. Trudeau has, the better off we are.")

There are a heavy number of problems that the DDRE office will have to face, and these, in effect, provide the reasoning behind the formation of the office:

New Procedures

One such problem is international coordination of the range and tracking operation. This, of course, was heavily underlined by the recent Cuban incident, when parts of a missile fired from Canaveral landed on Cuban soil.

In the past, haphazard was about the kindest word that could be applied to this particular area of range work. Agencies who anticipated such problems simply went wandering into the State Department on their own, or occasionally, went directly to the foreign government concerned. Under such conditions it wouldn't really be impossible for Army and Navy, for instance, to approach France and Spain separately, then end up building tracking sites directly across the border from each other.

Now, however, this particular problem has a logical point of focus. Comments one Defense manager in the Range office, "We now have the channels to handle this. We work closely with Assistant Secretary Irwin in International Security Affairs, and it's been a great deal of help."

In this same general area, the new DDRE office will be able to help out in another area. On an overseas tracking site, logistics and communications represent something like 80% of the investment, even though they are merely support functions.

By managing a consolidated approach to this, DDRE feels that they should be able to save at least a good part of the money that's involved.

Regarding range procedures, the new office already has results to report. For one thing, range safety is now the function of the Range Commander, rather than a member of the project team from the test in question.

What this means, says one Pentagon executive, is "objectivity. The destruct button is now out of the hands of people who may let personal interest in a project override the safety factor that's involved."

Further, range safety procedures are in the process of being standardized for all of the national ranges. Building on AMR experience, there is currently a training program in the works which will insure that the safety procedures are consistent at both AMR and PMR. Besides the training program, range documentation forms are also being standardized. Because more than one range is often involved in a given program, this would certainly seem logical. Actually, in the past, the forms were varied enough from range to range that contractors frequently asked for exceptions to be included in their contracts to avoid having to fill out both.

From the hardware standpoint, DDRE is currently working hard to draw a definite line between Range instrumentation and ground support equipment. The reason for this is that Range Instrumentation is supplied and operated by the range, GSE by the contractor.

What had happened was this: because there were no clear lines drawn, a contractor would frequently show up with enough equipment to nearly start up a range of his own. Plainly, the result was needless duplication. And just as plainly, something had to be done.

One other project in the hardware area: the National Coordinated Instrumentation Development Plan. The aim is coordinated future development, just as a current range instrumentation handbook exists for the time being. This will serve a pair of purposes.

Problem Areas

First, it will provide for maximum standardization of facilities. Second, (and some of this work is already being done) it will provide for a most reasonable allocation of critical resources, insuring most efficient use of what's available.

From the foregoing, it seems amply clear that something in the way of long range planning and overall coordination is badly needed. Only through such a lack could there be such a degree of confusion on who was doing what.

It is in such areas as this that the DDRE range and space ground support office will operate.

But in other, more down-to-earth fields, the DDRE office will be equally concerned. For instance, on any weapon system development program, it is now policy that range require-

(continued on page 50)



firing stand at Cape Canaveral, Florida, prior to launch.

for ARDC, to let them go ahead with the detail programming."

Both Air Force and Navy, then, have definite central points for this particular responsibility. Army, as yet, hasn't moved in this direction, still works through R&D Chief Lt. Gen. Arthur Trudeau and his Deputy, Maj. Gen. W. W. Dick.

From the Defense Department level, it looks this way, in the words of one Pentagon executive: "Organizationally, Air Force is probably in the best shape. ARDC offers a logical point of contact on detailed work, and they have the Air Staff man to keep in touch with us.

Navy has Admiral Connolly as a point of contact, and of course that's very handy for us. The merger of Bureau of Aeronautics and Bureau of Ordnance was certainly a step in the right direction. It meant that everything but BuShips was in one place.

"With the Army, we work through

The Military Budget's Crooked Path

From the time planning begins until appropriations are allotted, the \$40-plus-billion military budget leaves a trail in defense and legislative channels as tortuous as a mountain skier's.

by Murray L. Weidenbaum

Maurice Stans, former director of the Bureau of the Budget, has said, "Good budgeting is the uniform distribution of dissatisfaction."

Stans' Law, as this statement is now known, gives insight into the pressures brought to bear on participants in the federal budget process. Military programs not only compete with each other for funds, but against the various non-defense programs and demands of advocates of tax and debt reduction.

To understand the military budget process—so as to improve communications between researchers who ana-

lyze the military budget and those members of management who must evaluate the findings of military market research—one must first understand the over-all shape and dimensions of the Federal Budget itself.

The military budget is an interrelated affair and is not determined in isolation but as a major part of the entire federal budget.

In the past several years the proportion of the federal budget devoted to Department of Defense has declined from 60% in 1954 to 52% in 1960. The growing economy, constant tax rates, and inflation have permitted absolute

increases in the total budget and the amount devoted to defense programs.

If military's current share of the budget were equal to the 1954 share, the level of military spending would be \$47 billion a year instead of \$41 billion. This shows there is no fixed, reserved share of the federal budget set aside for military.

Major shifts have occurred as well within the military budget in recent years. Air Force's share has risen at the expense of the Army's; the proportion devoted to procurement and R&D has increased as the operations and personnel categories have proportionately

Preparation



1. Initial Target Figures



2. Detailed Estimates



3. Executive Review



4. Congressional Approval

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Within the procurement and R&D categories, aircraft programs supplanted conventional land equipment and, in turn, are now being nudged aside by missile and aeronautics programs. As for the budget itself, this is a breakdown on how the decisions are made. (See Chart)

Step One—Initial Target Figures. Each spring, the Bureau of the Budget (a unit of the Executive Office of the President) begins planning the budget for the following fiscal year which begins on July 1—approximately 15 months later. With information from each major government department and agency, and subsequent staff work, the President makes an initial determination of the budget level for each major agency. Merely an initial decision, it will be subject to change at numerous points in the process.

In the case of the Defense Department, the National Security Council reviews the budget level in terms of its evaluation of the defense requirements for the nation—relative to economic and fiscal capabilities.

NSC is composed of the President as Chairman, the Vice President, the Secretary of Defense and the heads of other cabinet departments related to national security—such as the State Department.

Step Two—Detailed Budget Estimates—On the basis of initial target figures, each department begins detailed preparation of budget submissions. This generally lasts through the summer and early fall.

General Frank Bogart, former Director of USAF Budget, described this phase of the process thus: ". . . we

start with the NSC program of defense requirements for the country over-all and the Air Force programs in numbers of wings and aircraft and flying hours and activities of various kinds, and those programs are made up in considerable detail and are sent to the field. Then the field commands compute their requirements . . . to meet their part of those programs during the particular fiscal year . . . These estimates come back into the headquarters and they are reviewed again, with the program documents and any changes that may have occurred."

The essence of the budget process is reviews, tentative decisions, and other levels of review.

Step Three—Executive Review

In late fall, the Office of the Secretary of Defense and the staff of the Bureau of the Budget conduct a joint review of the Air Force, Army, and Navy estimates.

The outcome goes to the President for review. The results are contained in the Budget Document which the President transmits to the Congress in January.

This document is of telephone book size and of incomparable complexity and obscurity. However, no malice is intended. This complexity occurs simply because the budget is assembled primarily for use by Congress, and especially the House of Representatives Committee on Appropriations.

It is the single major source on the whole gamut of military programs. Effort by the market researcher (to understand the budget) is both necessary and rewarding.

The budget document is divided into five parts:

1. **President's Message . . .** The only even semi-readable portion of the Big Book. It contains the President's general policy on the new budget and a summary of the major programs.

2. **Summary Tables . . .** Contain totals for the various departments which allows comparison among the different departments and between a given department and the total.

3. **Detail for each Department . . .** The most useful part of the document for military market research. For each appropriation account—such as procurement of ships for the Navy, construction for the Army—a summary description of the purposes the funds will be used for. Many schedules or tables are also included. Many of these are irrelevant, such as citations of applicable portions of the United States Code, average GS grade and salary, and sources and application of funds for the Naval Academy laundry service.

4. **Detail for trust accounts . . .** Covers social security and other trust funds which are not included in the total of budget receipts or budget expenditures. Those are based on the rationale that they are not truly governmentally-owned funds, but merely held in trust for future payment to the insured recipients. This can be ignored by military market researchers.

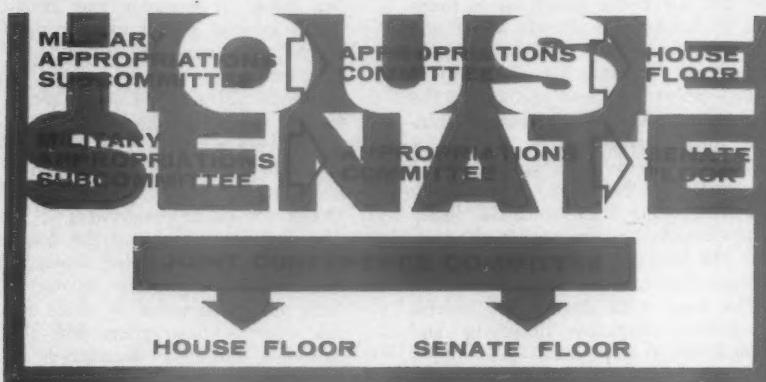
5. **Special analyses . . .** A group of miscellaneous items are contained in the back of the book. The final schedule may be the most useful one—a 10-year historical table on government expenditures.

(Continued on page 20)

Execution



Congressional Approval



Step Four—Congressional Approval

From January through June, Congress reviews the President's Budget and enacts actual appropriations to the agencies. Often, slippages occur in the Congressional schedule and the full backlog of appropriation bills is not worked off until July or August.

In such cases, temporary "continuing" appropriations are made. Because of nominating conventions in July, Congressional review procedures seem to accelerate in presidential election years.

The military budget follows a predictable path during this six month deliberation. (see Chart 2)

1. The President's recommendations are first assigned to the Military Subcommittee of the Appropriations Committee of the House of Representatives.

The Congressmen seem to feel that if they're initially responsible for raising revenue they should also have a lion's share in revenue distribution.

The House Military Appropriations Subcommittee holds "hearings" at which military officials testify as to the reasons for the funds requested for their activity in the Budget. A censored version of the transcript of these closed hearings is published. These published hearings do not comprise a comprehensive body of consistent data, but are a veritable goldmine of information (the needle in the haystack comparison may be more appropriate). These represent the major annual Congressional study of the military budget.

You may plow through a dozen pages of banter as to the use of government funds for the construction of dog kennels at an officers club and then come across the fact that this activity is being performed at the first base at which a Titan missile will be operational (at a time when the general location of Titan bases had not yet been announced).

2. The Military Subcommittee reports its recommendations to the full House Appropriations Committee, which generally performs a fairly perfunctory review. The Committee reports a single Appropriation Bill for the Department of Defense to the floor of the House of Representatives (this bill covers all Defense Department activities except construction and foreign aid, which are reported separately).
3. After floor debate and occasional amendments, the House passes the appropriation bill, and it then goes on to the Senate.
4. The Senate Committee on Appropriations sets into motion its Military Subcommittee, which generally acts as a court of appeals for budget cuts made by the House. It has been said that the Senate is the upper house because they always "up" the budget bill reported by the House of Representatives.
5. After approval by the full Senate Appropriations Committee, a revised version of the military appropriation bill is reported to the floor of the Senate for approval.
6. The House and Senate approved bills are sent to a Conference Committee (on which both Houses are represented) for ironing out differences. This result is usually a compromise. The Conference Committee report is normally approved by the Senate and House.
7. Finally, all bills approved by both Houses are sent to the President for approval or veto.

Step Five—Apportionments and Allotments

One other step must be performed before military services begin using funds appropriated by Congress. They must submit (for approval by the Budget Bureau) proposed use of these funds, by three-month periods.

The quarterly apportionment procedure is designed to prevent an agency from "using up" funds early and returning for a deficiency appropriation.

The Budget Bureau may apportion less than 100% of an appropriation and place the remainder in a "reserve." This has been done in connection with appropriations for aircraft in excess of Presidential recommendations.

Within the military department, allotments are made of the apportioned funds to the individual Bureaus or Commands.

Step Six—Obligations

Within the limits of the apportionment and allotment of funds made available, Federal agencies place orders, award contracts, buy goods and services, and take other similar actions which obligate their appropriated funds.

Pursuant to contracts placed, military suppliers produce goods and services ordered. This step can be a very extended one—it is the lead time from receipt of a contract to delivery of the end item.

Step Seven—Expenditures

The final step, the Treasury, on the basis of vouchers issued by the military, makes payment to suppliers. In the case of large orders for heavy equipment—such as aircraft and missile weapon systems—progress payments are paid during the production period.

It takes six years, on the average, for this entire military budget cycle to take place. The first year is spent preparing and obtaining approval. The next four to five are required for spending.

In the case of appropriations for personnel and operations, funds must be expended over a three-year period or lapse. However, military procurement appropriations are on a "no-year" basis—they are available until spent.

For a typical Air Force appropriation, 26% is spent the first year, 37% the second, 27% the third, 8% the fourth, and 2% the fifth—on the average.

A bit of the philosophy underlying preparation of the Federal Budget is contained in a chart which used to hang in the office of one of the directors of the Budget Bureau.

It was titled, *The Tools of Budgeting*, and contained three figures—a crystal ball, a pair of dice, and scissors.

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Wh Lead Time Becomes Lag Time

Russia is able to produce a weapon system from embryo to operation in about five years. It takes the U.S. nearly ten. Here the age old problem of reduction of lead time seems to crop it's ugly head up in industry as well as government. Here is what's believed a probable solution to cutting the lead time factor in the U.S.

REDUCTION OF LEAD TIME is perhaps the major problem facing defense and industrial management today.

It is a problem for which there is no simple solution. Indeed, it is a problem which can never be solved. There must always be better ways to get things done.

This is a continuing challenge to management. And meeting that challenge—finding that better way to get things done—provides the good manager with an inner satisfaction that is compensation in itself.

Our concern with reducing lead time stems from the fact that the Russians appear to be better able to produce weapon systems than we are. They can take a weapon system from the determination of requirement through concept, through development and production and into operation in about five years. It often takes us nearly ten years.

These are, of course, only averages. Some people dispute their accuracy. Others will concede that the Russians can produce weapon systems faster than we can, but will argue about precisely how much faster. But nobody will dispute the fact that the time needed to produce weapon systems in these United States is much, much longer than it ought to be.

Let's focus attention on management's role in the reduction of lead

by Thomas A. Callaghan, Jr.
Defense Products Group
Ford Motor Company

time. What exactly is this role? Quite simply, management must manage. Management must exercise supervision and control.

And simple though this concept may be, the size and the complexity of today's government and industry make it quite difficult for management to manage. Too often, in government and in industry, managers are mere spectators watching and wondering what's going to happen next.

They may be managers in title, but they are spectators in fact. They do not control and the reason is that they don't know what's going on. What's worse, they often don't even realize they don't know what's going on.

This is not an indictment of individuals. It is, however, a fair statement of the predicament that management in many large organizations sometimes finds itself. The individual manager finds it increasingly difficult to design adequate and effective methods of information, communication and control because of the size and complexity of large organizations. In any large organization, you always face the dilemma of how to secure, process, and transmit the tremendous mass of information needed for effective man-

agement decisions without prohibitive cost or unacceptable delay.

To the extent that management is unable to resolve this dilemma, the organization acquires a momentum of its own and management goes along for the ride. It is this spectator-management situation that is at the core of the lead time problem.

Most large organizations have trouble communicating accurate and timely data up, down and across management lines. This communications problem increases if management lines are long and involved, if methods of assembling, processing and summarizing data are random and undisciplined, and if there is confusion over who wants what, when and how.

Effective management requires that all management levels at all times know what each and every other level of management must do by what date so things may be done on time. Failure to provide this data on time leads to the spectator-management situation. The spectator-manager receives reports telling him where he's been. He does not find out where he's going while there are still alternative courses of corrective action available to him.

While this spectator-management situation exists in both industry and government, it seems to exist to a far greater degree in government. This isn't because people in industry are any smarter than people in government.

Actually government people have probably made more progress trying to solve this spectator-management problem than industry has.

But the spectator-management problem exists to a far greater degree in government for reasons which we must recognize and understand if we are ever to take constructive action to solve this problem and—by solving it—come truly to grips with the related lead time problem.

Excessive lead time is generated throughout the entire weapon system program. But the inexplicable, unforeseen delays generally occur at the point in the program where one organization (be it government or industry) needs approval or concurrence of another organization on matters relating to characteristics, requirements, specifications, design changes, subcontracts, funding levels, expenditure rates, etc.

What It Takes

It is the total of these approvals or concurrences that comprise the decision-making process. If the decision-making process is to be shortened, it must first be understood by all participating parties.

Management in both industry and in government can improve their own internal decision-making processes and so contribute to reducing lead time.

Industry, for its part, should become far better informed on government's decision-making process. What information does government require on a specific program to support a funding request? How well is government informed about the consequence of a budget cut on delivery schedules? How much lead time does government need to process necessary approval actions? And so on and so forth.

Government should be better informed on its own decision-making process. Too often, one government echelon doesn't know what is needed at the next echelon; doesn't know if the next echelon can make a decision or if it must send the data up the organizational line; doesn't know how long it will take succeeding levels to make a decision and echelons furthest from the problem are not always well-informed concerning the consequences of delayed decisions on program progress.

Fortunately, there are program control techniques which let the program manager in both industry and government monitor the entire decision-making process. At present, these techniques are more art than science. They are adaptations of techniques such as the Gantt System, the line-of-balance, and other techniques originally designed for production control.

Adapting production control techniques is by no means surprising if you think of the Pentagon as a production line. When you think of it, most people in the Pentagon are engaged in light manufacturing. They produce paper on which are recorded the thousands of decisions that speed or delay weapon system programs.

The prudent program manager, therefore, will use these program control techniques to identify the decision-making production line he must use to achieve program goals. The techniques should identify each and every major decision point of the contractor, his subcontractors, his contracting agency, the various military review authorities, and the pertinent funding and approval channels in Defense, the Budget Bureau and Congress.

The program control plan should graphically display the interrelationship of all activities and organizations with the authority to advance or impede the program. Plans of accomplishment should be so clear that management attention is focused on those things which must be done sequentially, and those things which may or should be done concurrently. Most military managers are familiar with these program control techniques. Many have been developed in the military departments themselves.

Essentially, these program control techniques require a disciplined system of management communications. Essence of the system is a method of communication by exception. Not all data must be communicated. But all data on deviations from pre-set goals must be reported. Thus management immediately knows about any interim failure when it occurs, and timely corrective action can be taken without serious delay to the total program.

The Approval Ritual

But these program control techniques can serve a far more effective role in reducing lead time than most people realize. They can be used to make the system work. Any organization of any size (whether private or governmental) must have some systematic type of performance audit. But too often, the reviews and approvals set up for this purpose gradually become ends in themselves, rather than means to an end. The approval ritual soon becomes more important than the purpose for which it was designed. In time, human frailty enters the equation with the result that the easy cases are approved or disapproved and the difficult decisions are deferred.

Few involved in the approval ritual fully appreciate the truism that a decision may only be deferred when it

isn't needed. If a decision is required to prevent program delay, failure to make that decision is tantamount to deciding to delay the program.

Even more serious is the failure to see that there is not a one-to-one relationship between decision delay and program delay. A one-day decision delay can be a ninety-day program delay if a mill-rolling order date is passed—a six-to-sixteen month delay if a construction season passes.

Hide-and-Seek

All too often neither the organization seeking approval nor the organization that can grant approval fully see the lead time penalty from deferred decisions. The organization seeking approval tends to exaggerate consequences of belated action. The organization empowered to grant the approval tends to minimize consequences. Thus the approval ritual moves more and more to a world of unreality.

It is here that many managers fight the problem, rather than using available techniques to make the system work. You can not defend the approval ritual. But the system can definitely be made better.

The contractor's program manager can use program control techniques to spot each step in the approval process, can see that enough time is allowed to assemble and present information needed for each required approval, and can see that enough time is given to the approving organization to make a decision.

In turn, the military program manager can follow a like course regarding approval authorities in his own department, in the Defense Department, the Budget Bureau and Congress. Each approval authority can be made aware of its role in the program and its responsibility for program accomplishment or delay.

This may not be a perfect solution to the problem. But it is an effective one. Program control techniques have been used in both industry and government. The reason these techniques work is that they give management the tools management needs to manage—to control. Without these tools, management is a spectator—and the system, the organization manages itself.

The days of the completely intuitive manager are numbered. Program control techniques married to automatic data processing will gradually eliminate the spectator-manager. Already the Navy's PERT program and the Air Force's PEP program point the direction that management must take to establish and maintain control, and thereby reduce the time it takes to get things done.

FROM KAMALA

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The Good Manager: DO YOU MEASURE UP?



A GOOD manager isn't just a man who can give a good speech on management or come up with short cuts in business deals. It takes a man with as much training and know-how as a good jet pilot in his respective field. A good manager doesn't just make decisions. He establishes, communicates, motivates, develops and many other things before he makes a decision.

Colonel W. W. Culp

Commandant
United States Army Management School

IT'S FAR FROM HARD to find somebody who is willing and ready to talk about management. Indeed, almost anybody has their own ideas on the subject, and there's practically no limit to the people who can give a really entertaining and instructive speech on the subject.

And if there are many speakers, there are even more numerous writers on the subject. Some are truly well-versed in the management field, many are proposing "get-rich-quick" schemes, procedures or philosophies.

No individual can listen to all the speakers or read all the writings. Even if such were possible, it does not follow that they would become good managers.

Command, management and leadership are closely interrelated. Learning about them is quite different from their practice. Memorizing a list of Do's and Don'ts does not necessarily improve a manager's effectiveness or behavior in getting things done through and with his personnel and organization.

To improve, he must not only increase his knowledge and skills, but also know the impact of his attitudes and habits upon operations and those below and above him. The manager must build a constructive attitude toward himself and the personnel with whom he works. He must study his own motives and behavior along with their effect upon all concerned. He must be receptive to new and different ideas, and foster innovation for better ways to do things.

Management, or leadership, is a rewarding profession. It takes intelligence and imagination, and calls for much hard work, including application of good common sense, sound judgment, and logic.

Now just what is management? There are as many different definitions as there are people interested in the subject and sufficiently interested to put their thoughts in speech or on paper.

Management is partly art and partly science. It is the process of organizing and employing resources to meet predetermined goals. It is effective use of men and material in accomplishing a mission.

Inherent in command, management is the process used by commanders and staff officers to set and achieve objectives in fulfilling a mission. It is the process by which missions and tasks to be accomplished and men, money, material and facilities are synthesized through the *operations* of the organization, under the *direction* of the manager.

It is not just direction of things, but by all means includes development of people. Management is an orderly, human and conscious approach to the conduct of any activity. It is getting things done through the efforts of others—doing things through and with people.

Whether management is an art or a science, or both, history leaves no doubt that ability to get results with and through people is the most valuable art and science of all. Some call

this capability leadership, others call it command, still others call it management.

Regardless of titles, there is a common denominator: the exercise of authority.

The individual who exercises this authority is one of the most important keys to the success or failure of his organization, be it business, industry, or the military—be it large or small.

The subject of management readily divides itself into two broad areas. Functions of Management (see chart) are the actions performed by and within an organization at its various levels of line and staff to achieve objectives. Function of the Manager are the personal actions of the leader to insure that the Functions of Management are properly executed within his organization.

Just what does the good manager do? He *establishes* realistic and attainable goals. He *communicates* these goals, his policies, and the minimum necessary implementing instructions clearly, properly and in a timely manner. He practices *innovation* in the formulation and attainment of goals; he creates a climate in which all concerned know that he welcomes the new and the different.

He *motivates* his people to want to receive and execute his policies and communications. He *develops* subordinates to maximum potential; he develops successors to his own position. He *maintains a cooperative attitude* in his own office and throughout his entire organization. He *makes decisions*.

How does a good manager do these things and just what kind of a man is he? To answer these questions is a formidable task; here are some ideas for consideration.

Leaders and managers are made; but admittedly some are born with better equipment than others.

The good manager is a rational and responsible individual who obtains resources and then uses them with maximum efficiency. He takes personal and active interest in programming and budgeting. He manages by, among other things, objectives and programs.

He balances requirements with and against available resources, or obtains more when essential. He considers today's problems in terms of tomorrow's objectives; today's decisions are thus made easier, because he considered them yesterday.

Like the prophet, he sees the goal ahead; unlike the prophet, he designs means to attain it. He reaches goals through the efforts of others, under all conditions, pleasant and unpleasant. He looks to the future, beyond today's difficulties and over the horizons of tomorrow's needs. Rather than fear it, he grasps the challenge of the untried and unknown.

He seeks circumstances he needs to fulfill his task; if he cannot find them, he creates them. He encourages innovation, and energetically addresses himself to significant responsibilities of today and tomorrow, and the day after.

He is not interested in arguments in favor of doing nothing in a new way. He is not one who succumbs; instead, he overcomes and forestalls difficulties.

He does not become so intrigued with novelty that he overlooks reality.

He not only reacts but he acts; he makes things happen—and gets things done.

He visualizes and describes the parameter; he motivates his planners to provide the details. He projects his own thoughts and actions—and those of others; he avoids being surprised. With due respect for tradition and custom, he is unswayed by antiquity. He is cognizant of

human frailties; he realizes that reports are frequently colored by interests and circumstances.

He knows that some errors are but an inevitable condition of success—that frequently progress is built upon mistakes—and that their correction is a test of management stamina. He measures risk against caution—and adopts the imaginative approach. A generalist in spirit, a humanist in attitude, he is a specialist in getting things done.

The effective manager works, and thinks and supervises. He delegates and deputizes; he follows up. He perceives, advises and counsels; checks on himself and his subordinates. He visits his activities; he visits his higher headquarters or supervisors, and implements their directives.

The Wise Manager

He is given both to logic and inspired judgment. He surrounds himself with proven or potential competence; he encourages his people and draws from them to their maximum potential. He leads, and those who follow feel both the pull of his personality and the push of his will power. He respects a man who tries and does his best in an emergency, even though he falls somewhat short; he is not fond of one who wrings his hands and takes refuge behind the restrictions of temporal policies and regulations.

While knowledgeable of humility, he is prideful in responsibility—quick with justifiable praise—impartial in earned criticism. While capable of amiable tolerance, in trying times he does not

shrink from exercising stern judgments. He rewards and disciplines. By his honesty and attitudes, his loyalty and behavior, he generates confidence, stimulates his people, and creates esprit.

The mantle of leadership, the mantle of the manager-leader, is not easy to wear. Frequently the manager must make decisions contrary to the advice and recommendations of his staff and subordinates; frequently he must make the difficult and unpopular decision. There can be no milk toast approach to command, management or leadership.

Some loneliness is inevitably the leader's lot. The responsibility for action, and for results, is his. The responsibility for the decision, regardless of its nature—made by him or his subordinates—is his and his alone.

The wise manager creates such an atmosphere that his somewhat unpopular decisions are readily accepted by all concerned with the feeling that they and their counsel have been thoroughly considered, and that the directed course of action is the best for accomplishment of the job and for the benefit of the whole.

The manager is confronted with a veritable conglomeration of things, peoples, and considerations. Time will never become available to him of its own volition—the effective manager makes it so. The successful manager concerns himself with the new, and with creative initiative. He accomplishes the routine. He devotes his principal but not total interest to the significant, the rare, and the different.

The manager does not succeed via education alone. The effective manager must have the imagination to innovate, the capacity for judgment, and the strength and inclination to persevere. He must think and ponder, discuss and listen, consider and reconsider. He must decide and act.

Intelligence is a prerequisite, brilliance a bonus. But dedication to cause, tenacity of purpose, and common sense in application, are transcending.

Functions of a Manager



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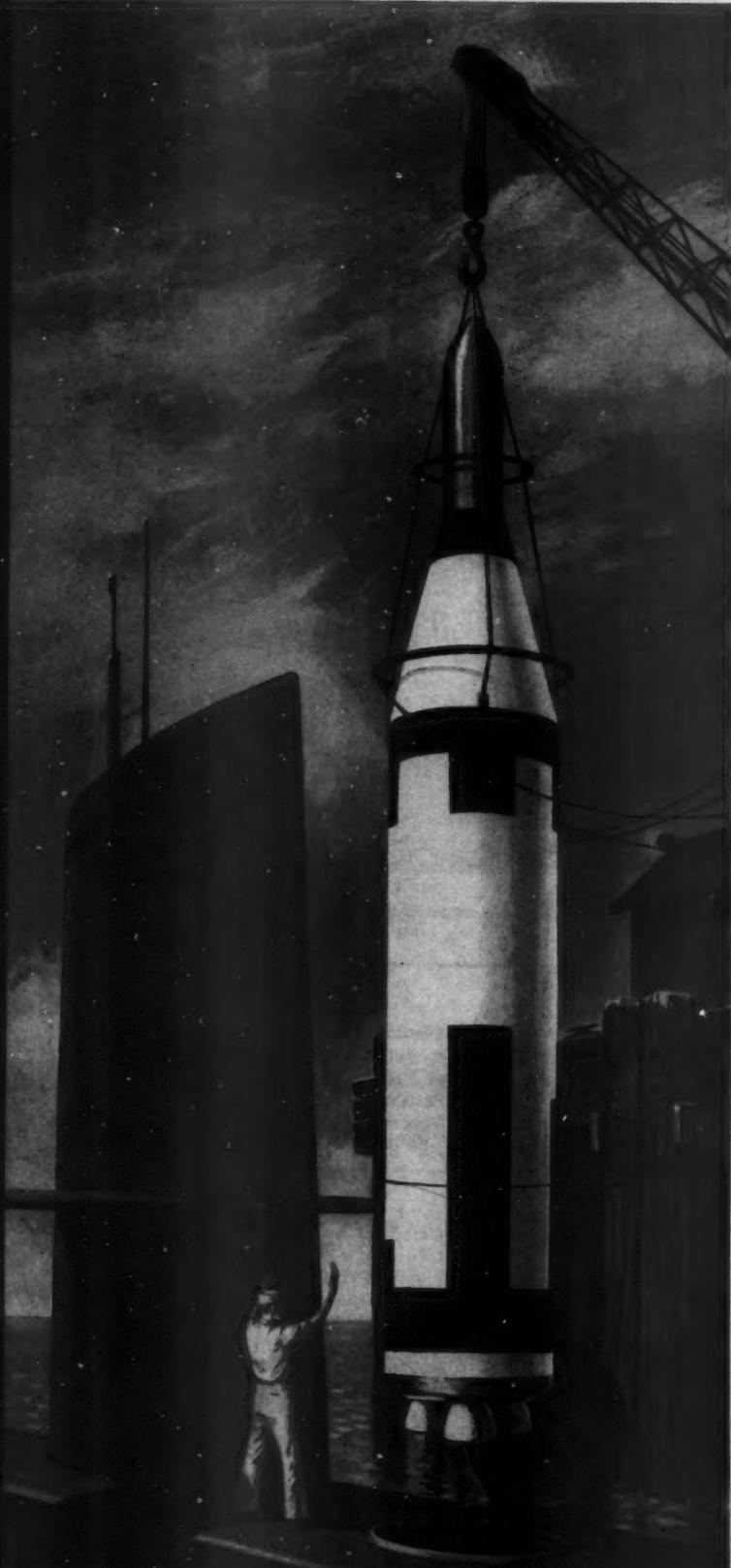
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Professor Elmo J. Stewart, Director of the U. S. Naval Postgraduate School Computing Center, at the console of the 1604 which has been proving its reliability in round-the-clock performance for a full year.

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Management Reports

Are Yours Up To Par?

Effective communications is the key to efficient business. In management, reports form the backbone of the communication chain, keeping people who need to know informed. Here is what one author thinks is the key to good management reports . . .

by David P. Erlick

REPORTS are one of the important media of communication with management. For management to make decisions, it must have facts and information in the form of reports.

These reports are necessary to indicate what problems exist and to furnish the basic data needed to formulate solutions for these problems.

Many busy executives in government and business have a feeling of frustration about the reports that they receive. The reports do not meet their ideas and concepts for information.

To overcome their frustration, executives at the higher echelons are apt to take one or more of the following courses of action: (1) they may call in a management consultant firm to study the problem; (2) they may reorganize their reports staff; (3) they may ignore their reports staff and seek the information they want from another segment of the organization; or (4) they may, from time to time as the mood strikes them, order changes in details or items of the reports.

It should be possible for people at the top level, and other levels, too, to evaluate their own reporting system and to work out with their staffs a satisfactory reporting system.

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Before discussing important pointers in reporting, a review of the typical reporting system is in order.

In large government agencies there is usually a system of uniform recurring reports.

The report usually contains operating data on work loads. The basic data is compiled at the operating or field stations. This is done at the end of the report period, and a copy is forwarded to a higher office that has supervision or control over a number of the reporting field stations or offices.

Detail Reproduced

At the higher office, the reports are reproduced in an overall table that may add nothing more than grand totals. Most of the detail is reproduced. This consolidated report may now go to a central office or headquarters to be summarized. This summarization, which shows salient points of the report, may be combined in a book containing reports of other kinds of operations.

At the second summarization stage, the photostated or printed summary of the first level will be analyzed. Possibly, obscure points or reasons why figures are up or down may be requested from the various lower levels of persons in the chain of communication. How far down it will be necessary to go to find the answer will depend upon the quality and confidence in the answer received.

Persons at the second summarization level have added interpretive material. This interpretive material may be presented in writing or in combination with charts or other devices.

Personnel at the third summarization level—and the number of summarization levels may vary with the size and type of organization involved—will generally prepare an abbreviated report based on the second summarization. Persons at this level may decide that the report need not go to the top, that it is not significant, or that action can be taken at that level or at a lower level.

If a report is prepared for the top level, it may be oral or written. At the other levels the report usually will be in writing and usually is uniform in appearance.

The types of reports utilized by management include administrative reports, regular reports, special reports, statistical, financial, and narrative reports. Administrative reports pertain to the internal operation of an organization and can be statistical, financial, narrative, or a combination of two or more.

Regular reports are recurring weekly, monthly, quarterly, or at some other

definite time period. Special reports deal with a particular aspect or problem and generally will continue only for the duration of the situation. Statistical reports may be administrative, regular, or special reports.

A monthly administrative statistical report may contain data on units of work received, processed, and pending. Narrative reports supplement and interpret data in statistical and financial reports. Financial reports pertain to data on expenditures, budgets, or data commonly found in accounting reports.

Some of the points that people in management positions can check themselves in determining whether their reports are adequate are discussed below. The elements of reporting, oral or written, generally break down into the following:

- (1) Report facts
- (2) Presentation
- (3) Timeliness of report
- (4) Objective of report
- (5) Receiver of report

(1) *Report facts.* What facts are material to the report? Management requirements for facts and figures must be understood and made clear to the reports staff. Periodically these requirements should be reviewed and studied. Reports that reach top management usually have been summarized. Too great a degree of condensation or summarization may result in the presentation of a misleading picture. Too much detail may bore the executive or condition him to a superficial analysis of the report.

Make It Brief . . .

Some of the reasons why reports are too detailed are:

(a) The training and experience of those responsible for report preparation has been an emphasis on detail.

(b) The belief that it is better to put too much in than to leave something out.

(c) Lack of understanding or exact definition of management requirements.

(d) Deliberate attempt to conceal awkward or embarrassing situations in a mass of figures.

(2) *Presentation.* The best methods of presentation are those which are geared to the executive's likes and dislikes. The personal desires and habits of the top management must be taken into account and must be communicated to the reporting personnel. Some executives delight in long columns of figures, whereas others prefer brief summaries. And some management people do not like to look at figures at all. A top manager may have an antipathy to the use of charts or graphs in any report.

There are guidelines that subscribe that ideal reports are those which have the fewest possible figures, and pertinent facts presented clearly. Simple graphs, charts, and other pictorial representations materially assist in the understanding of a report. Figures should be rounded and as few digits presented as possible, consistent with a clear understanding of the report. Graphs and charts that require explanation, that are puzzling or obscure to the viewer, are useless for the purpose of simplifying the report presentation. These guidelines, however, should apply only within the framework of the executive's likes and dislikes.

Use Uniformity . . .

Uniformity should apply to format as well as to data. It implies that the basic principles underlying the report—the rules of the game—will not be changed in the middle. If rounded figures based on a sample are used, they will not be compared with enumerated figures without explanation. The principle of uniformity should not be applied to the point of boredom. It is necessary to change the format, to change the style of presentation and the figure scheme as soon as or before top management begins to show signs of weariness. If one were to require a rigid schedule for change it might be a good idea to review top management reports every six months for the purpose of making such changes.

(3) *Timeliness.* Under this element speed and timing are included. Reports can be speeded up by getting "flash" figures and by estimating some part of the data. The transmission process can be speeded up by authorizing overtime work at the end of the reporting period. It can be hastened by requiring a telegraphic report, which may be in the nature of a preliminary report prior to the formal detailed reporting set forth in reporting instructions. It is a common failing in federal agencies that reports are a month or more late in reaching the people who use them. A distinction should be made between reports that require immediate decision-making and those that are in the nature of long-term propositions. Decision-making reports of immediate urgency should be given priority in processing and preparation.

Timing is important in the summarized reports that reach top management. What is contained in a report that top management sees may directly influence decisions if it reaches the top at the psychological moment. A report bearing upon a policy or problem with which the administrator

or executive is concerned at the time may be psychologically "right." A report that is too early is not "right"; if it is too late it is frequently useless.

(4) *Objective and objectivity.* The objective of a report should be clear to all concerned. The report must show the essence of the problem to be controlled. The report should not be confused by the addition of more than the substance of the problem. The question should always be asked by the receiver of the report: Does the report accomplish its purpose?

The dangers inherent in any report to top management stem from a lack of objectivity. This in turn may be due to a lack of forthrightness and to inadequacy. A report to top management may be unpleasant, but at all times it should be objective. Staff assistants to top management have been heard to say that they do not dare to

give the top executives the unvarnished truth because of the resentment, anger, and irritation that it arouses. A "sugar-coated" report or a misleading report should be abhorred. Above all else, the integrity of the reporter is the keystone in reports to top management. The report, although not glossing over unpleasant situations, should not be so worded as to magnify a bad situation into a worse one. This occasionally occurs with the intent of getting a reaction from the executive and incidentally calling attention to the communicators of the report. This device can "backfire" and be detected by the receiver of the report, and should result in repudiation of the communicators.

Objectivity in reporting is much more difficult to achieve than is realized either by the reporter or by the receiver. Certain reports may tend to

become the personal hobby of particular staff members. Sometimes the lack of confidence of the individual presenting the report or the inadequacy of the report is disclosed. The lack of sureness of the individual in himself or in the report is embarrassingly apparent when a report is surrounded by "hedging" words and when inconsequential data and figures are included. The report becomes a pallid, lifeless paper rather than a vital communication.

Psychological factors should operate to prevent routineness. The presentation of routine reports breeds superficiality and boredom on the part of the presenters and the receivers. If a report provides nothing worthwhile to the top it should not reach the top executives. Information for information's sake is not sufficient as the purpose. Top administrators can put a stop to accepting reports that lack purpose.

(5) *Receiver of report.* In establishing and maintaining a satisfactory system of reports, a great deal depends on the receiver of the report. It is apparent that getting the report to a member of the top management team is not enough. Does the top manager have trust and confidence in the reports and figures presented by the staff? Confidence in reports is nurtured and fed by simple, accurate reports presented in a manner that creates conviction. It is almost axiomatic that a successful system of reports requires oral communication between the receiver and the reporters at every step. Effective reporting means continuing personal contact between reporter and receiver. Easy, informal access between reporter and receiver should be encouraged. The actual report presentation may be oral or written, or a combination of both.

Top executives should check the reports that they receive to determine whether there is a satisfactory system of reports. The following questions may serve to summarize some of the important criteria by which an executive may determine whether his reports and reporting system need further appraisal:

What facts are pertinent to the report?

Are the executive's personal likes and dislikes taken into account in the presentation methods used?

Is the report timely as well as on time?

Is the report objective? Does the report accomplish its purpose?

Is there frequent personal contact between the receiver of the report and the reporter or reports staff?

The Report Stages

FINAL TOP REPORT

Several new projects have been undertaken in the area covered in this section, with perhaps the greatest activity being reported in publication studies and experiments: of the availability of information of its dissemination among scientists. One phase of this is by the Federation International (1.8) to study the availability and value of scientific conference papers and proceedings. Another phase is seen in the studies being conducted by Herner and Co. (1.9) on the availability contained in unclassified Government reports. These new studies for the Advancement of Medical Communication (1.10) where the fate of medical research reports and meeting papers is being studied.

Publication experiments publishing or new formats include the Chemical Society, new form publication being tested by the Wildlife Disease Association (1.17). Studies of new formats concerned primarily with mechanization of the production of are reported in the research phase in by Chemical Abstracts (1.11). The reader's attention is directed to the study of automated title indexing at Bell Telephone Laboratories, Inc. (2.4) and the use of machines in preparing conventional indexes at Gm. Do enter Ch. Its Se. de prep. rd-j. by up. m. t. t. t. t. t. t. Th. or. t. FIELD STATION REPORT FIELD STATION REPORT

their present uses of information, and their present patterns of obtaining needed information. New projects underway include the study of informa-

Fleet Work Study Groups

CAN THEY SAVE THE FLEET MONEY?

In 1959, Adm. Arleigh Burke began a program to cut the manpower and money costs of operating the world's largest fleet. Here are some of the ails and cures encountered by the two teams--each composed of four officers and six enlisted men--during their so called "trial period" . . .

WITH THE INCEPTION of two Fleet Work Study Groups in the U.S. Navy, it is apparent that some of the old sea dogs in the Navy have new tricks to learn.

In late 1959, it was determined by the Chief of Naval Operations Adm. Arleigh Burke that it might prove profitable—not only on a monetary but on a manpower basis as well—for the U.S. Navy to adopt a program of Navy Management Improvement similar to that of the British Navy. (See AFM, December, 1959, p. 11)

Burke's program gave two Fleet Work Study Groups the difficult task of finding ways to improve manpower and monetary efficiency of the Navy. The Fleet Work Study Groups have run into several problems, including one big one—getting personnel to carry out recommendations for correcting management problems aboard ships.

Some major problems facing the teams are, as one team commander gives them: (1) activities know where the problems are but when the team is made available, people are often reluctant to come right out and say what the problem really is (a common reply is "what problem?"), (2) getting joint effort and participation, (3) lack of motivation, (4) convincing the Bureaus.

Too Many Forms

In one particular case concerning a technical Bureau and a senior operational commander, it was found that a weekly engineering maintenance check-off list required over 70 signatures or initials and had spaces for more than 200 dates.

In this particular case, generally the form was passed from department to division head, then to the leading CPO, eventually winding up in the hands of the lowliest fireman, who in turn, spent more than the required time just trying to figure out what the form was for.

This all goes back to the old problem of having too many forms for the same thing. It isn't unusual in the

Navy to find forms used to find out if other forms were carried out. Eliminating these is just one project for the Fleet Work Study Groups.

Contrary to what some Navy commanders feel, the studies aren't to get personnel off ships so they can be reassigned to other jobs, but to find faster and easier ways to get work done on board ship, with the least man-hours on each job.

Preserve The Old?

Shipboard maintenance isn't just making the ship more attractive or efficient. Most U.S. ships have been in commission for so long (many since World War II), that the main object is preserving them until replacements come along.

Says one Navy spokesman, "these ships were designed to last indefinitely, but if the proper maintenance isn't carried out, they will have a short life. It isn't the fault of the crews, but lack of proper supervision and motivation."

One example of where team recommendations produced money savings was aboard a destroyer tender. Changes recommended were such that they will be sent to the appropriate commanders to be used by other ships in the tending and repair business.

Of the many recommendations made to the tender, one alone promises to save \$500 per boiler on retubing costs by simply using adequate but cheaper tubes which were already available.

A recent job completed by the Atlantic team looked into parts of the engineering and hull maintenance practices in a typical WW II destroyer. Based in part on their findings, the Atlantic Fleet Work Study Group was asked to assist the Atlantic Fleet Commander in a big project in the Destroyer Force.

Based on studies made in fleet destroyers, the object is to institute a prototype of a new system for maintenance in a destroyer just completing conversion under the Fleet Rehabilitation and Modernization Program (FRAM Mark I).

This new system—which will in-

clude all departments of the ship—may, if it proves itself in the converted destroyer, be adopted throughout the Navy.

The two groups (as compared to thirteen in the Royal Navy) are embarking on Burke's program strictly on a trial basis. As one officer said, "right now they are on a period of evaluation. If they succeed on this program, then we can look forward to adding more teams."

After a two year trial period, Navy—provided the teams prove worth their salt—will add more teams, and may start its own Work Study Team Training School.

Offhand, naval authorities believe some members of present teams will be used as instructors in the new school, using experience they gain during the two year trial period.

Key To Success

One reason for the big push in the Royal Navy is the fact that it has been accepted and bought by shipboard commanders and others and is being expanded so as to include all units of the Royal Navy.

The key to the success of the Royal Navy teams is the fact that it was placed under the direct supervision of Fleet Admiral Lord Louis Mountbatten, who was then the First Sea Lord. The key to how well the idea works in the U.S. Navy is going to be how hard Admiral Burke and other Navy admirals push it. A Navy spokesman said that after a year of trial and error, Burke is still "very much in favor of it."

Most requests for the services of these teams, so far, have come from the Destroyer Force in the Atlantic Fleet and from the Commander, Naval Air Pacific, in the Pacific Fleet. Individual requests have also been received across the board in the Fleet and from the Shore Establishment.

If the Fleet Work Study Groups can help our Fleet Commanders and the Bureaus find a better way to maintain our ships, then they will indeed have won their spurs.

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PENTAGON PROFILE



Lt. Gen. Donald Norton Yates

Deputy Director of Defense Research and Engineering
(Ranges and Space Ground Support)

"To Cure an Ill . . ."

BEING A WEATHERMAN—even a former Commander of the Air Weather Service—would seem to be a strange qualification for the Deputy Director of Defense Research and Engineering for Ranges and Space Ground Support.

But if a comparison is made between today's fast-growing space establishment (see p. 15, this issue), and the changeability and unpredictability of the weather, perhaps this road to the top space range job wasn't so unlikely for Lieutenant General Donald Norton Yates.

It was no easy job to pick out the 6th of June in 1944 for the Normandy landings (for his part in this, Yates earned the Legion of Merit, awards from three other governments), but in creating order out of confusion, Yates set a precedent logical for his present job.

It is more directly appropriate that Yates came to the Pentagon from Cape Canaveral, where he had been in command when the first U.S. satellite went into orbit, answering the Soviet space challenge in spaces.

Besides his recent Canaveral experience, Yates is an old Pentagon hand, by just about anybody's standards. Except for a scant year and a half, Yates served in Washington from 1941 until 1954, then went to Canaveral, only to return to the Pentagon and the job he now holds last May—six years later.

Commenting on his being chosen to run Canaveral, Yates says "after almost eleven years in Washington, I felt I deserved a little bit of Florida sunshine. Whether or not Personnel looked at it this way, I don't know, but that was the way it worked out."

It's not hard to see why Gen. Yates was pleased about the Canaveral assignment, from both a business and personal standpoint. On the one hand, it represented a professional challenge, certainly unlike anything else the Air Force had to offer.

Also, it gave Yates a chance to put into practice the ideas he had gener-

ated and picked up working as Director of Research and Development on the Air Staff.

From a personal standpoint, Florida offered Yates equally as much. A native of Bangor, Maine, Yates was nonetheless enthusiastic about the Florida climate. The reason: it gave him ample opportunity to use his 22-ft. Barbour Cruiser for fishing, water skiing, and just plain boating. (One aide points out that "Yates drives his boat like he works. There are only two speeds; stop and full ahead.")

Yates stayed in Florida for nearly six years, then returned to the Pentagon once again for his present job. Characteristically, the blunt spoken General has definite ideas about what his job is, how it should be run, and how long it will take him to finish it.

"The only reason this job exists is to get the space range situation into some form of organization, some sort of regular system that will tend to run itself with minimum problems. I only see the job as lasting for about a year. At that time, I should be ready to move out and turn the completed job over to the office of the Assistant Director, now headed by Alvin Waggoner. A decision making deputy for this area should no longer be needed."

This, then, is the job: With the power to act as Dr. York's Deputy, Yates has, in effect, the authority to make the decisions needed to organize the world-wide space operations of the U.S.

One more measure of the complexity of the job: already, facilities at the three ranges overlap in some areas. An illuminated map in Gen. Yates' office shows space tracking facilities from Northern Canada to Ascension Island, from Great Britain to Eniwetok. (Significantly, Yates controls the map, and its many lights, from a panel behind his desk.)

Gen. Yates himself offers one more aspect of the job: "It's too easy to become spoiled out in the field. Here in the Pentagon, it's almost impossible to make a major decision—and have it



stick—in less than six months. Frankly, I have no aspirations to become a bureaucrat, and I find this frustrating."

One indication of why Yates will never become a bureaucrat: In the words of one officer who has worked with him, "people are disappointed if he misses a conference. He has the un-failing knack of cutting through the fog and finding out just who it is that knows what's going on. From there on, it's a two-sided debate."

One reason that Yates will probably meet his deadline is that, in his words, "I'm treated like a civilian around here." In spite of experience that has all the earmarks of making the man a rabid Air Force partisan, Yates has successfully maintained enough objectivity to work well with all three services and National Aeronautics and Space Agency as well. This objectivity was developed in Yates' Canaveral days, when everybody wanted to do everything at once, and he had to set the priorities.

One Navy man, who gloomily bordered the announcement of Yates' appointment with black tape, keeps the announcement as a curiosity, shows it to visitors as a joke. His comment: "We were just unjustifiably scared. Gen. Yates has never, to my mind, shown any form of discrimination in his work."

A number of years ago, when Yates (now a Command Pilot) was in flight school, he was, through a set of involved circumstances, slow-rolled out of a PT-3 at 2000 ft. by his instructor.

What happened in the next few moments is related by Yates: "When I realized I was out of the airplane, I immediately reached for my ripcord, but I couldn't find the D-ring. I pulled off a glove and finally located it, but by that time I was sure I was down to tree-top level.

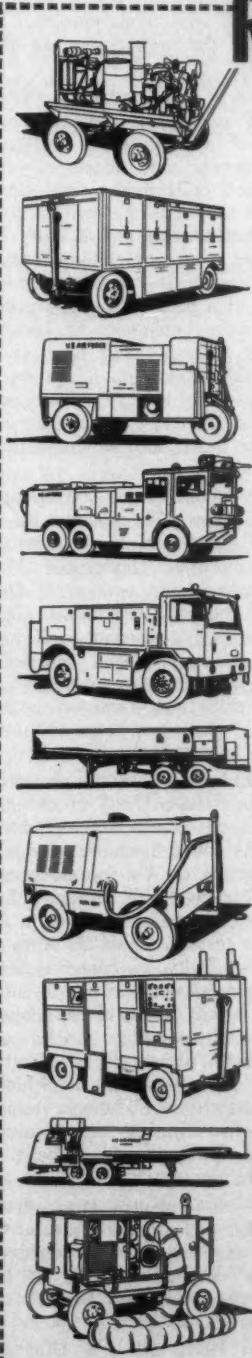
"Even at that, I can't remember a longer wait than from the time I pulled the D-ring and the chute opened. Later, when I talked to my instructor, he said he had never seen a parachute opened so fast."

The point of this story would seem to be that Gen. Yates is a man who can move fast in a tight situation—a man who is not satisfied with his performance unless it's considerably better than average. (This second point, incidentally, goes for the men who work for Yates as well, as they willingly testify.)

The situation is tight, but through careful and effective management, it is one that can be conquered. That Yates is setting his own deadline—as he did after falling out of the PT-3—is perhaps the best indication that the job will be well done and on time.

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The Fourteen Erroneous Postulates

by Leland B. Kuhre, Col., USA (Ret.)*

Founder and Director
The Academy of Organizational Science

10—"Line" and "Staff" are separate functions.

The generalization—*line* (command) and *staff* are separate and must be kept separate—has the repetition of a cliché, the prestige-utterance of a dictum, and the authority(?) of evolution. These implant it in mind as a self-evident truth—a postulate to derive practice from.

A *staff* consists of the functions assisting a head in a line of heads—the functions which view the head's whole organization, pervade it, collect store and use needed knowledge about it, and try to develop their own respective fields throughout it. This does not include supporting service.

The postulate is inherently erroneous by its common-knowledge effects: self-interest conflicts within staff and with heads in the line; the organization's uncertainty about the kind of authority behind staff's promulgations, e.g., head's authority (delegated), or 'authority of ideas,' or authority to 'sell,' etc.; staff's self-aggrandizement, often in unawareness; and so on—all take time and energy away from advancing the organization's purpose.

The postulate describes *what is*. While making-do, practitioners feel intuitively that something better *should be*; an indicator is the increasing use of words such as *team*, *entity*, *unity*. For example, the U.S. Army has long had in its staff manual "The commander and his staff should be considered as a single entity." The increasing use of committees is a trend toward unity. In the prevailing literature, the frontier of thought is pointed toward a yet-to-be-formed unity.

But something-yet-to-be cannot be observed; it is excluded from the 'scientific method' of empirical science. Therefore, in 1942, I started to use a scientific method of rational science (first introduced by Plato)—the method of assuming that a problem is solved and working back from it until a statement is reached, the truth or falsehood of which is already known.

Let *X* be both a unity of consciousness and a unity of knowledge, similar to the human mind with inherent powers of thought, reason, and idea-creation. Let *X* be planning, organizing, directing, coordinating, and con-

trolling an organization where nothing outside of *X* has consciousness or knowledge of the organization as one entity.

Let *X* be *x* in an organization where one human mind has physical-sense perception of all entities of persons, materials, money, and machines—individually and collectively. One mind manifests *x*; the mind has within it a unity of consciousness and a unity of knowledge of the organization. Within *x*, the purpose of the organization is the nucleus of a field of thought-force. This field orders elements of knowledge into a corresponding field as a magnetic field orders iron filings on a piece of paper. Let the critical production of *x* be decisions such that all else is either going into or emanating from decisions.

Now let *X* have features corresponding to *x*, but let *X*'s capacity be a greater than one human mind (two or more—tens, hundreds, thousands). The common structure and content of Decisions produced by *X* are known. The fields of knowledge needed in *X* are known (the organization's relations with its cosmos, branches of learning, techniques, skills). A Decision is an integration of decisions from each of the fields of knowledge in *X*.

If the field of consciousness and knowledge in *X* be a Unity of unities, each appropriate to one human mind, then there can be a mechanism which for any situation in *X*'s consciousness can call for, receive, and integrate decisions so as to form a Decision in *X* and cause it to issue from *X*. A prerequisite: the Unity of consciousness in *X* is generated—not divided—into less and less broad unities of consciousness with corresponding unities of knowledge until, ultimately, *X*'s Unity is a system of unities each of which is appropriate to one human mind available in the learning and training of the times. Integration will be the reverse of the generation.

A genesis—mode of generating—had to be invented to form the Unity as a system of any number of needed unities. The detailed solution is in *Atogenics*, the structural branch of Organizational Science.

Starting in 1946, the new Unit of organization was formed and used in

practice; the rational scientific method reached the strongest possible statement: "It works," efficiently and effectively. The words *line* and *staff* disappeared, and their separateness with them, while the essential functions of both, now integrated, remained.

11—An organization is composed of two organizations: the "formal" and the "informal".

In the field of managing, commanding, or conducting an organization for any purpose—business, government, military, human service—prevailing thought assumes two organizations in one, formal and informal.

Their assumed origin generally distinguishes the two: authority decrees the formal; evolution evolves the informal. Another distinction is according to relations between persons: the formal organization consists of superior-subordinate authority-relations; the informal of personal/social relations.

More and more during the last three decades, the literature from empirical science (sociological, psychological, behavioral, management, etc.) gives postulate-weight to the notion of two-organizations-in-one and selects the informal as primary, even to recognizing and using clichés.

The postulate assumes that any entity of collective human work is an 'organization,' but the word is empty—usually a misnomer for 'arrangement.'

Men have been developing the genuine organization-conception for over 2,000 years from its origin in Aristotle's natural science in which *organon* was the word-incarnation of the idea of "something used in working." In English thought, 1548 marks the first word-incarnation of the idea in *organ*, instrument. By 1664, expanding thought had developed the idea into the conception of many-organs-as-one, *organism*, e.g., the human body. Then developing thought emulated the organism-conception in man's creations, e.g., the steam engine, until the emulation was in the word *organization* first used in 1790.

*Author Kuhre may be contacted at P. O. Box 5274, San Antonio 1, Texas.

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As are the two examples, the entity of collective human work is dynamic, kinetic, and contains its means of generating its energy. As in the two examples, to *organize* the entity is to create in it a structure of connected organs acting for themselves in using one another in working together. Without such automatism, there is no organization-conception.

However, as though the name's the thing, prevalent practice says it is 'organizing' while it is actually using a different and equally old but much less efficient structural conception—arranging—placing in some order (line, row, rank, echelon, etc.) according to various schemes of relations. The arrangement, like pieces on a chessboard, is inert and static; it is moved by its arranger.

In the arrangement for collective human work, there are various relations connecting persons and things, individually and by groups, such as relations of authority, function, importance, personality, status, rank, social group, line, staff, line and staff, geography, system, procedure, process, etc.

For any given person at a given time, any one of several relations may be primary and thus govern his use of energy in making or doing something. At another time, another relation may be primary. Any two or more persons may, in unawareness, be acting from cross-purpose-relations in their minds as primary.

It is, obviously, impossible for any one relation-conception, such as authoritative or personal or social or functional, to assimilate all the others so that it can be consistently primary and governing with stability, continuity, and homogeneity in the minds of all persons throughout an entire entity of collective human work. Lacking consistency, the entity must waste energy in confusions, conflicts, and failures in making or doing things.

But the organization-conception has the efficiency of both consistency and automatism. Its organs have been available since 1778 when the instrument of communication was first seen as *organ*, e.g., the contract.

As in biological science the generated organs in the living body are made of cells, as in mechanical science the generated organs in the entity of collective mechanical work (e.g., engine) are made of parts, so in Organizational Science the generated organs in the entity of collective human work are made of individual contracts formed with the who-what-where-when-how-why of something to be made or done, mentally or physically, such that the integrated individual

things made or done will be the entity's thing made or done to produce the effect wanted.

The erroneous postulate is corrected thus: An entity of collective human work has two major components: an organizational structure of generated contract-organs, and an unstructured collection of persons as contract-holders related by, activated by, coordinated by, rewarded by, and using the organs in working together efficiently and effectively to produce the entity's effect wanted. Organizational engineering creates the entity's organic structure as it should be for the entity's purpose.

12—*The organization is analogous to the organism.*

Organization has come to be a general label for any entity of collective human work for any purpose—business, government, military, human service.

The organization-conception has been developing for over 2,000 years from its origin in (Greek) *organon*, something used in working. In 1548 the *organon*-concept was incarnated in (English) *organ*, an instrument.

An organ is a thing, not a person; however, to a person his body is "something used in working." The living body came to be seen as a structure of distinct organs so constituted that the functioning of the organs and their relation to one another is governed by their relation to the whole. This conception was incarnated in *organism* in 1664; it has automatism, that is, the organs act for themselves in working together. The first generally known man-created emulation of the organism appeared in the 18th century, the steam engine. The organism-conception for non-living entities was incarnated in *organization* in 1790.

Everyone has a structural conception of the human organism in some degree. It is naturally the only common concrete image of the organization-conception—a dynamic, kinetic, articulated structure of self-acting organs in which every organ is at once a means and an end to every other.

The prevalent *to organize* without constituent organs is misnomer for *to arrange*—an equally old but different and markedly less efficient structural conception. Here one arranges a collection of persons and things in his mind according to his scheme of relations chosen from those of authority, function, line, staff, personality, social group, status, procedure, process, etc.

In lieu of organization—a structure of self-acting organs—there results a mere arrangement of parts being actuated by its arranger while his natural organism-image is a tacit analogical model for operating and maintaining the arrangement.

Reasoning by analogy is a weak form of reasoning in which, from the similarity of two things in certain particulars, their similarity in other particulars is inferred. But the perceptible human organism and the perceptible arrangement of persons and things are not similar. The first has constituent dynamic organs with automatism; the second has no organs except static things (persons cannot be organs).

The first has a single source of energy—its life-force and will; the second has concurrent multiple sources—all its persons as individuals—tens, hundreds, thousands, . . . Therefore, lacking essential similarity, the so-called organization is not analogous to the organism. The would-be analogy's implication that persons are organs—things—violates human nature; this is resented and thus the analogy causes wasted energy—inefficiency.

A distinct new stage in the development of the organization-conception began in 1778 when the organ-concept first included the instrument of communication. In 1787 the U. S. Constitution established the contract—an instrument of communication. In the 20th century, partial organic structures for new entities of collective human work are created overnight so to speak as articulated structures of prime, sub, sub-sub, and so on, contracts or franchises.

In 1945, to complete the 167-year-old stage of development of contract-organs, we solved these prerequisites: a universal form of dynamic contract-organ; a rational method of generating homologous organs from a prime organ in successive stages so that each organ issues from a preceding organ until the dynamic organs are each appropriate to an individual person to conceptualize and actualize, and are each a replacement for the prevalent static 'job description'; and a mathematical base in the generated serial order, 1, 2, 3, . . . , n so that each organ has its connecting number in a system of number-relations.

Thus any entity of collective human work can now be organized—provided with an articulated structure of dynamic organs for all its persons to use for activating, guiding, integrating, and rewarding their use of mental and material energy in making or doing things to produce the entity's effect wanted.



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Research Rundown

VIOLENTLY DIFFERING OPINIONS ON MISSILE RANGE futures, roles and missions are being held in the iron hand of Defense level policy, are not likely to break out seriously anytime soon. The reasons: top-level Service officers won't support maverick factions, budget steps in this direction are tripped up as soon as they are made.

COMMENT ON THIS POINT BY ONE high-ranking Navy officer is best indication why headway won't be made along these lines. Shown a paper differing considerably from the DOD line, the Admiral pointed out in his best quarter-deck tones, "This is the sort of thing up with which I will not put!"

FOR MISSILE RANGE FUTURES, THIS MEANS that Atlantic Missile Range will continue to be the hardware development range, with Pacific Missile Range handling polar orbit shots, and other training/operational jobs. Because of its size limitations, White Sands will continue working with smaller missiles, much component testing.

WHILE COMPONENT TESTING IS UNGLAMOROUS, when compared with Polaris, Discoverer and other big programs, it is nonetheless worth noting that greatest number of "data points", that is, actual pieces of information, were generated last year by White Sands.

NOW-OR-NEVER ATTITUDE ON A NUCLEAR AIRCRAFT will probably be adopted by Air Force for this year's Congress. The reasoning behind this is that only money is needed to get the show on the road, much more delay will limit the usefulness of the program.

FULL BACKING FROM REP. MELVIN PRICE can of course be expected, as has been true in past go-rounds on the ANP program. Basically, the line of argument will be this: "Let's either make this a full blown program, or just forget about the whole thing."

OVERLOOKED SELLING POINT ON PROJECT SLAM might have meant some considerable difference in outcome of the sales pitch. Touted as an attack type weapon, the nuclear-powered ramjet might have stood a better chance if some attention had been paid to its potential as post-attack reconnaissance plane. This is one area where Defense is short, one job that can't be handled by ballistic missiles.

STANDARDIZED GROUND EQUIPMENT FOR MANNED space recovery programs will be one of the top aims in Project Meteor, recently set up by the Air Force. To be based at Edwards AFB, Calif., Meteor will aim to set present and future needs in the manned recovery vehicle area.

USE OF WORK STUDY GROUPS, such as the Navy started in 1959, will be the thing to watch for in the Armed Services in the future. The idea of Work and Management Improvement originated in the British Navy which now has thirteen teams. The object of the U.S. teams will be to find where money and manpower saving may be made in all branches of the different services. Although still on a trial basis, the two Navy teams have done commendatory work for such a new and exploratory group.

Research Rundown

Improvements Assure Anti-ICBM Defense

Improvements in detection will soon assure development of a feasible anti-ICBM defense, Brig. Gen. A. W. Betts, Director of Advanced Research Projects Agency, told the 15th annual American Rocket Society meeting.

The Pacific Range Electromagnetic Signature Study (PRESS) will employ a modification of the BMEWS tracking radar Tradex on Roi-Namur Island near the Kwajalein test site of the Nike-Zeus program.

Betts said that this will permit use of the same targets that are to be provided next summer for tests of Nike-Zeus, and will also permit maximum technical inter-change between the ARPA research program and the Nike-Zeus program. PRESS data will be fed to an on-site computer that will receive data from airborne instruments, providing precise spatial and time inter-relationships.

Betts predicted that the new Pacific Range study will provide a good picture of what a re-entering ICBM looks like for the first time. Absence of such data has been a major drawback to effective R&D.

This deficiency has been partly due to the fact that U.S. missile ranges are over water whereas Soviet firings have often been over continental land areas—permitting a much more precise observation and tracking operation than has been possible with U.S. shipborne equipment which augments island observation and tracking stations.

Rocket Fuels Close to Payoff

More efficient rockets at greatly reduced costs have been predicted, as part of a revolution in the chemical industry, by C. William Schnare of Air Force Test Center, Edwards AFB.

Citing interservice exchanges of information in the rocket field, the scientist said the Air Force and other agencies are "close to substantial payoff in both liquid and solid propellant fuels."

Another speaker at ARDC's Seventh Annual Science and Engineering Symposium, Richard Newman, psychologist at the Rome Air Development Center Human Engineering Laboratory, discussed possibilities of future pilots using touch for communication.

The system would involve changing voice vibrations into mechanical vibra-

tions a pilot can feel by placing a small plate in contact with his skin. Research has revealed that an area on the human chest is more receptive to such pulses than other parts of the body.

"So far as Air Force applications are concerned, we're thinking of developing this touch system for getting information to pilots when their hearing or sight has been impaired by injury, weather, or environmental conditions," Newman said. "Secrecy would also be afforded by this method—permitting individuals to communicate with each other without the knowledge of persons nearby."

RCA Is Contractor For Project Saint

Radio Corporation of America was named contractor for development of the final stage vehicle and inspection payload of Project Saint, which is under an Air Force research and development program aimed at demonstrating the feasibility of satellite rendezvous and inspection.

Air Force, in a guarded statement, said the present classified program is a technical exploration that could lead to a system of rendezvous and identify unknown satellites in orbit.

The contract is the result of Air Force investigations to discriminate between decoys and genuine payloads, and between scientific and military payloads.

There was no known method for determining the mission of a payload, but one approach might be through sensitivity to great electronic activity on some scientific payloads as against the lack of such activity in massive payloads—which may be an orbital nuclear weapon awaiting a ground-transmitted signal.

Atlas Agena B is launch vehicle for the system and manager of the program will be the Air Force Ballistic Missile Division with technical supervision by the Aerospace Corporation.

BMD is reportedly planning a test shot within a year to test the capability of satellite rendezvous techniques.

Electronic Gadget Finds Jet "Bugs"

A unique airborne electronic troubleshooter that detects and records the cause of "bugs" in jet aircraft in flight has been developed for Air Force by Lockheed's Georgia Division.

Air Materiel Command awarded the contract for development and flight evaluation of the company-designed "Malfunction Detection and Recording" (MADREC) system which monitors the complex functioning of aircraft systems.

Initial installation is being made in a SAC B-52 bomber of the 93rd Bomb Wing, Castle AFB, Merced, Calif., and will be evaluated by representatives from Wright Air Development Division, SAC's Operations Engineering Section, Lockheed engineers, and coordinated with International Business Machines, prime contractor for B-52 systems.

Target date for program completion is May 31, 1961.

MADREC serves as an electronic referee between functional static tests on the ground and pilots' reports of malfunction in the air. The system evaluates the function of one, or as many as six systems at one time, producing the information on an oscillograph recording in the same manner that an electrocardiograph analyzes a patient's heart.

ARPA Assigned Task Of Closing Gaps

Advanced Research Projects Agency has been handed a new task calling for continuous review of basic research areas with the idea of closing any "gaps" in current military efforts.

Project Arcade, as the new concept is called, would permit ARPA to initiate advance research, subject to the approval of the Director of Research and Engineering. Work should be carried out in conjunction with industry laboratories, research organizations and universities.

At first, the project will be more of an in-house activity than the so-called Project Sunrise, set up earlier this year to identify basic technical research problems. Although Sunrise is largely the work of outside consultants and is concentrated on very broad problems, the new Project Arcade may spotlight specific research requirements and spark program actions.

ARPA however, is under instructions to be careful to avoid unnecessary duplication.

ARPA has been permitted to extend its presently limited exploration of missile and space solid propellants into the field of liquid and hybrid fuels. ARPA has been examining ways of developing more efficient solid propellants under Project Principia, which was ordered to open the way for development of solid propellants with useful energy of at least 10% to 20% over those in development.

DASA Sponsors Medical Reactor

Construction has begun on the planned Biomedical Reactor Facility to be erected at the National Naval Medical Center, Bethesda, Md., and sponsored by the Defense Atomic Support Agency.

To be known as the Armed Forces Radiobiology Research Institute, it will be under the sponsorship of DASA for advanced study and research in the biomedical effects of radiation.

The project was initiated in June 1958, and the TRIGA Mark F Reactor developed and designed specifically to meet its requirements. The reactor and its associated laboratory and experimental facilities will be built by the General Atomic Division of General Dynamics Corporation, San Diego, at an approximate cost of \$2.4 million and is scheduled for completion in October, 1961.

This is the first pulse type reactor designed solely for medical research.

The DASA-TRIGA will enable the scientists to duplicate, in a safe controlled operation, a great many of the types of radiation exposure necessary for biomedical experiments.

Activation analysis will be used to determine traces of elements in body

tissues and fluids, detect small chemical changes within cancerous cells and assist in the study of bone growth and diseases.

The programs will be carried on by scientists of the military services, other federal agencies and civilian organizations interested in radiation effects.

Wing Development Awarded to Convair

Following the award of B-70 wing development to Convair's Ft. Worth plant, Air Material Command officers envision few major changes from original subcontract awards.

AMC spokesmen noted that, because North American took over design of the wing during the period when only two prototype airframes were authorized, most of the design engineering formerly awarded to Boeing is complete and wing development now remains "largely a fabrication job."

Reinstatement of the B-70, well after the start of fiscal 1961, reduced the amount of money that could profitably be spent in the remaining months of the period. A substantial saving was achieved in the interim development of better ways to produce the bomber's unique honeycomb steel-alloy skin.

Slippage in the B-70 program during the cutback period can be assessed two

ways, procurement officers said. "If the time to an operational date for an entire B-70 wing is considered, there may be no appreciable delay. But if the operational target date for the first complete tactical prototype is computed, slippage in the program will be about nine months."

A total of \$265 million has been approved for spending in FY 1961.

New Designations Given ARDC Groups

The Vandenberg AFB field office of Air Research and Development Command's Ballistic Missile Division has been designated the 6565th Test Wing.

The group will give AFMRC a "blue suit" test and evaluation capability for missile and space launches, as well as furnish continuous technical assistance to SAC crews training at Vandenberg.

Under Col. Joseph J. Cody, Jr., the 6565th Wing will have three main responsibilities of site activation: military test, evaluation, and space launch operations.

Site activation will include all functions necessary to attain initial operational capability, including construction, equipment installation, checkout and technical assistance.

ARDC has also formed an international test group at Edwards AFB, Calif., for NATO countries purchasing the Lockheed F-104G.

Designated "F-104G Test Group," the team will consist of representatives of the West German Air Force, Canada, Belgium and The Netherlands. The test team will perform a typical Air Force evaluation of the complete F-104G weapon system at Edwards AFB because nations involved do not have the unique facilities and experience of the Air Force Flight Test Center and its personnel.

New 50-knot Boat Built by British

Vosper Limited of Portsmouth, England, has built a prototype of a new 50-knot-plus British Fast Patrol Boat named Ferocity, aimed at possible NATO use.

Having completed a three week, 2000-mile sales demonstration tour to naval stations in Denmark, Norway, Sweden, Germany and Holland, arrangements are now being made to give demonstrations to Commonwealth, NATO and other foreign navies.

Main power units of the fast craft are two Bristol Siddeley Marine Proteus gas turbine engines each of 4,250 s.h.p. For simplicity, and to provide for long patrols at low speed, Ferocity

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has two Mathway-Daimler cruising and maneuvering diesel engines besides her main propulsions.

With a length of 88 feet, a beam of 22 feet, and an average displacement of 75-85 tons, the new craft has a maximum speed in excess of 50 knots.

"Ferocity's" range on main engines (at about 45 knots) is 400 nautical miles while the range increases to 2,000 nautical miles (at about 9 knots) on auxiliary engines.

New Title Given To USAF Office

A new name for the Air Staff focal point for coordination with the National Aeronautics and Space Administration has been given to the Air Force Directorate of Systems Development. It is now the Directorate of Aerospace Systems Development.

The new title is more descriptive of the programs managed by this directorate.

The Directorate of Aerospace Systems Development is responsible for development at the Air Staff level of all Air Force weapon systems, support systems and advanced development projects, (except nuclear propulsion systems).

Research and development responsibility covers all Air Force missiles, space projects (except SAMOS), manned aircraft (such as the B-70), electronic systems (such as the SAC Command and Control System), and advanced development programs, notably Dyna-Soar.

The Director is Maj. Gen. Marvin C. Demler and the Deputy Director is Brig. Gen. Milton B. Adams.

Nuclear Role Discussed At Paris NATO Meeting

One item high on the agenda at the Paris meeting of NATO foreign and defense ministers was the proposal that member nations support themselves in the NATO effort, thereby relieving some of the burden being carried by the U.S.

Also on the agenda: a proposed 10-year plan for NATO's future development. The object: adapt NATO to meet both the nuclear might of the Soviet Union and the desire of its own members for a greater nuclear role in the free world's defense—instead of, as now, the U.S. holding the nuclear cupboard key.

Things to be weighed carefully by the U.S. before a nuclear capacity could be turned over to NATO are: questions of timing, impact on the Soviet Union, impact on America's allies and impact on world nuclear disarmament prospects.

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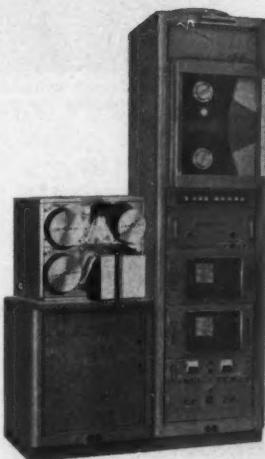
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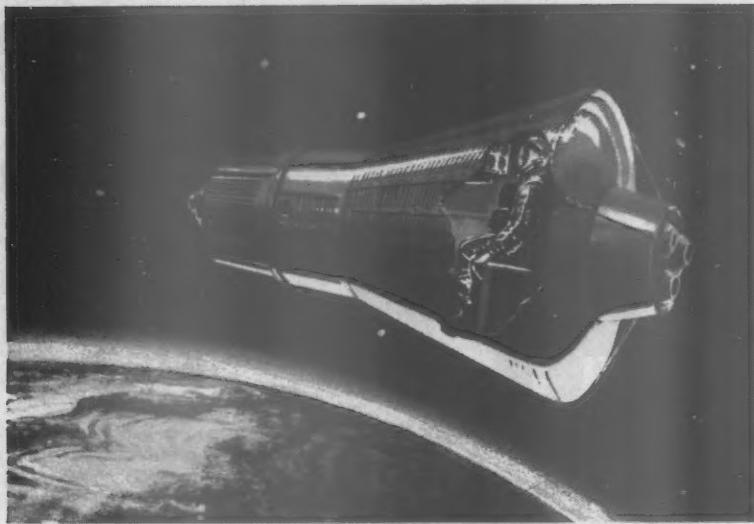
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Orbiting spacecraft of NASA's Project Mercury will be tracked by a global arrangement of 18 communications stations.

Keeping track of a man in orbit

One day this year, the first U.S. astronaut may be rocketed into a globe-circling orbit, some 120 miles in space. Although he will be a mere dot in the heavens, a vast world-wide network of eighteen tracking stations—including two operating from ships at sea—will provide monitoring of every phase of the high-flying astronaut's journey in his orbiting spacecraft.

Linking each of the tracking stations with the project's Space Flight Center at Greenbelt, Maryland, and Mercury Control Center at Cape Canaveral, Florida, will be an array of Teletype equipment—Model 28 page printers, automatic send-receive sets and punched tape units. These Teletype communications devices will record and relay flight data collected by tracking and telemetering equipment from the spacecraft's instruments to the Flight Center, where an elaborate complex of data processing machines will coordinate and interpret flight data and provide directive information for the world-wide network of tracking stations.

Teletype Corporation is indeed proud to be a part of the Western Electric industrial team selected by the National Aeronautics and Space Administration (NASA) to build the vast communications network so vital to Project Mercury.

Teletype page printer, tape punch and reader units will be used throughout Project Mercury's global communications network to gather and relay flight data.



Can Personnel Piracy Be Stopped?

"I don't know of a single major company nor of any outstanding minor companies in the electronics industry, that are not at this very moment, engaging in piracy, stealing men who are important to a project."

The speaker is B. R. Cannon, President of Technical Publications Institute. His subject stems from one of the most annoying thorns in the side of the military procurement officer—whether he is buying research, development or actual hardware.

Cannon goes on to ask "how funny is it to the tax payer when he has to pay the price for the chaos created when a top man is taken from his job, given a better one. Who has to pay the price? We know that our country pays the price, and we love this country; and yet we are trying to mess it up so badly in some instances that it's going to be very difficult to do anything about it."

Comments one high Defense Department source, "we are acutely aware of this situation, and we have been for the last ten years. During the war, we were able to exercise personnel controls in critical jobs, but this is no longer the case.

To attempt this sort of control in peacetime would simply be impossible under a free-enterprise system of government. About the best we can do is to make sure that we don't inadvertently pick up the tab on this sort of recruitment."

Speaking in Los Angeles, Cannon went on to say "I would advise all of us to give deep consideration to the chaos it's now causing, and to do something about it, lest a resolution be put forth and placed before the Defense Department which will stop essentially this piracy."

Acknowledging "lip service" paid to suppression of this method of recruitment, Cannon said more was needed: "I advocate that we try among the leading industries, among the subcontractors, and among the contract engineering firms, to make reasonably certain that we are policing our personnel departments."

Cannon also pointed out an agreement set up during the war by Aerospace Industries Association to prevent this.

Whatever the solution is, it is badly needed, and is sure to have the full support of the Defense Department if it appears effective.



Procurement Trends

BRIGHT NEW HOPE ON THE MANAGEMENT SCENE is the growing use of Navy's Program Evaluation and Review Technique—and variations on the theme. Picked up by Air Force and Douglas under another name (PEP—Program Evaluation Procedure) the use of the technique continues to grow.

ONE MEASURE OF PERT'S EFFECTIVENESS is that the Navy's Bureau of Weapons is becoming more and more insistent that its contractors use PERT or something like it as a part of the contract package. The many benefits of the program in terms of time reduction and management control are fast becoming very obvious to military managers, and more growth is likely to follow.

AIR MATERIEL COMMAND IS MOVING in this direction, with its recent WSPACS meeting, aiming at a Weapon System Program and Control System. Participating in the meeting, besides AMC were ARDC, USAF Headquarters and 19 prime industrial producers of aircraft, missiles, electronics and ground support equipment.

AS IS TRUE WITH PERT, WSPACS aims at developing information to enable the manager to make better decisions faster on weapons development programs. Says the Air Force, WSPACS is "a management research project to develop a mathematical control technique that will rapidly compute the impact of any change in a weapon system on the cost and availability of that weapon system and associated systems." A rose by any other name . . .

ANOTHER AREA OF PROGRESS FOR THE MANAGER is in the continuing development of common computer languages. One recent step: GECOM (General Compiler), which lets a computer accept many of the language instruction techniques used today. Built by General Electric, GECOM works with such diverse items as English language, ALGOL, and COBOL.

GOOD NEWS FOR THE MINUTEMAN was announced recently by ARDC Chief Lt. Gen. B. A. Schriever. Savings up to \$300,000 per missile will result from use of an improved method of communication at missile sites. The big savings: radio transmission will enable elimination of cables which formerly ran for miles and miles at the missile sites—and at between \$20,000 and \$25,000 per mile.

BETTER AND MORE RESPONSIVE SERVICE FROM AFSSC should result from a new battery of recently installed computers (IBM 705—III, 1401s). Aim of the new machines is to give the Center greater, more rapid capacities for handling the vast information they must work with, will also provide a unified set up, as opposed to former arrangement with something like three different processes involved (tape to card, card to tape, etc.)

LOGISTICS HEADACHE FOR MISSILE RANGE managers has to do with overseas tracking facilities, needed for practically any satellite program. Logistics and communications costs amount to something like 80% of the total investment, with the actual tracking equipment—the reason the site is there—amounting for the slight remainder.

GOOD DESCRIPTION OF THE DEFENSE SYSTEM and the Pentagon came recently from Dr. A. M. Zarem, President of Electro-Optical Systems. It went like this: "The DOD system is like a gigantic bowl of wet noodles. Trying to get something done is like pushing on one end of any of the noodles. Nobody knows where the noodle is connected—where it goes in the mass—and what, if anything will move."

Procurement Trends

Aircraft Exceeds Missile Procurement

John H. Rubel, Deputy Director of Defense Research and Engineering, says that manned military aircraft are here to stay. But measures must be applied, both by industry and the military, to halt the upward spiral of development and production costs.

Aircraft procurement is expected to be projected to the \$4-billion to \$5-billion per year level and continue to exceed missile procurement for several years. If costs of airframe per pound continues to rise as it has, it will average the price of gold by about 1975.

Rubel said, "what the nation can develop in the way of manned aircraft and what the military departments can deploy will be major factors in shaping the future of the world. The economic environment, insofar as it is predictable, will have an increasing effect on U.S. decisions to develop and procure any particular weapon."

Among programs that cannot be extended into the future, according to Rubel, is continued evolution of more interceptors. The impact of new manned aircraft systems, such as the B-70, may be greater than current aircraft such as the B-52 which furnishes the chief U.S. deterrent threat.

New Concept Saves Inventory Costs

Reduction of military supply inventories, through use of the "single manager" concept, has reduced total supplies on hand from \$54-billion in 1957 to \$44-billion in 1960, Perkins McGuire, Assistant Secretary of Defense (Supply and Logistics), told the Washington Post of the American Ordnance Association recently.

"Thus, in the past three years we have reduced supply inventories by \$10-billion," McGuire said, "but these reductions haven't weakened our defense punch any more than a boxer weakens his punch by getting rid of fat."

"Using the single manager system, armed services avoided new buys of many supply items in 1958 by drawing supplies worth \$587-million from each others' excess inventories.

"Only through a new system of exchanging inventory information—single classification and stock numbering system established by the federal government—has such action become possible. A few years ago government

agencies used eight different methods of supply classification and 27 stock numbering systems," McGuire said.

Direct access to excess inventories saved \$1.25-billion in 1959 and \$2-billion in 1960. "When you reflect that \$2-billion will buy a dozen Polaris submarines, you gain some concept of the saving," McGuire said. "You can buy just as good a weapon with a dollar saved, as with a new dollar taken from increased taxes. The cold war is being fought on three fronts: economic, political and sociological. We can't afford to lose on any front."

New IBM Computer To Make Forecasts

Now turning out weather forecasts in support of SAC, USAF and Army commands is the new Air Weather Service (AWS) IBM 7090 computer located at Offutt AFB, Neb. It was placed in operation on October 24, 1960.

Completely transistorized, it can turn out operational forecasts six times faster than previously possible.

The new computer produces 24 and 36-hour wind and pressure forecasts for five levels of the atmosphere up to 55,000 feet in 20 minutes. This operation would be impossible by manual methods in the short time available for making such forecasts.

Two IBM 7090 computers are working full-time on meteorological forecasts and experiments. First of these computers was placed in operation recently at the Joint Numerical Weather Prediction Unit, Suitland, Md.

While the Suitland computer continues to turn out weather products common to the needs of the Weather Bureau, Air Force and Navy, the AWS computer at Offutt will be used primarily to support ASW programs for meeting the needs of its customers.

Navy Unveils New Facsimile Process

A Navy sponsored high speed facsimile system developed by the Hogan Faximile Corporation was demonstrated recently at the Pentagon.

The radically new information transfer system, developed under sponsorship of Bureau of Ships, will transmit microfilmed engineering drawings or printed pages from one point to another—reproduced enlarged on translucent paper at the receiving end—at the rate of 26 feet per minute.

It is expected to overcome a serious

distribution problem pertaining to construction diagrams and plans for Navy ships. Blueprints for a single ship such as an aircraft carrier weigh as much as 300 tons.

The system consists of a Scanner, which picks up images from microfilm, and a recorder, which receives the images from the Scanner either by coaxial cable or microwave (radio) transmission network. The recorder can be situated a considerable distance from the Scanner.

In a practical application, if recorders were situated in shipyards throughout the country, and it was desired that these yards build the same type of ship simultaneously, the engineering drawings for the ships' construction could be transmitted from a single point to any or all of the building yards at the same time. The plans would be reproduced as 18" wide prints at the receiving sites and would be ready for instant use.

DOD May Revise Present Data Rules

Defense Department is circulating among defense trade associations a proposed revision of procurement rules governing proprietary rights and technical data.

A draft version, replying to industry and congressional critics of the present policy, would eliminate the definition "proprietary rights" and establish a "limited rights" protection for contractors. Data developed wholly at government expense would be available to DOD on an "unlimited rights" basis.

DOD said the reform will permit military "to get all data" it needs and will eliminate "the necessity for predecision as to the 'proprietary' nature of individual items."

It is designed to simplify administrative problems and assure defense contractors technical data developed at their own expense won't be used by the government to give competitors an unearned advantage.

To accomplish this end, DOD proposed to bar use of all "limited rights" data (that which is developed with company funds prior to the contract) in re-procurement of the same item from another firm. In the past, such data has been at the disposal of officials making re-procurements. A number of firms charged their proprietary data (patented or copyrighted) was being used to the advantage of competing contractors.

In explaining the reasons for its complex reform proposal, DOD noted that previous policy requiring identification of proprietary rights on a contract-by-contract basis in advance of the award is difficult to administer.

Navy Finance Center Installs Computer

Navy Finance Center, responsible for handling and examining about 1,000,000 allotment accounts, over 100,000 retired pay accounts, and over 1,700,000 pay records, recently obtained a large-scale transistorized computer to help reduce nonproductive paper shuffling and to increase operating efficiency.

As a result of intense research concerning the feasibility and value of using electronic data processing, the IBM 770 was installed in September, 1960.

The computer has not only reduced space, air conditioning, and power requirements of the vacuum tube models, but has lowered maintenance costs and increased reliability.

In converting the allotment and savings department to electronic data process, over 4,000,000 punched address and accounting cards will be put on magnetic tape. It will permit a daily, rather than monthly updating of records; will enable allotment reconciliation to be performed on 100% of the accounts each six months; and will reduce process time while yielding more accurate results.

After computer application has been made and the account established, retired and retainer checks can be issued with one-fifth the man-hours presently spent under the conventional EAM equipment.

AMC Discloses Contract Breakdown

The Pricing Policy Branch of Air Materiel Command's Directorate of Procurement and Production has released its most recent figures on types of procurement contracts.

During FY 1960, the Air Force spent more than 50% of its procurement dollars through contracts with incentive provisions: 25% were of fixed price incentive type; 8% were written on a cost plus incentive fee basis; and 20% were fixed price contracts, putting emphasis on contractor efficiency with direct bearing on the percentage of profit.

Other types of contracts written in FY 1960 included: fixed price redeterminable—4%; cost plus fixed fee—42%; all other types—1%. "All others" category includes cost reimbursement, cost sharing, time and materials and labor-hours types of agreement—used mostly in contracting for research studies with non-profit colleges, universities and private research and consulting firms.

Incentive contracts now in effect scale incentive awards on the basis of efficiency in overall performance, delivery and cost areas. Incentive provisions may concentrate on one or all of these items.

AMC is currently studying results obtained from 16 contracts written since late FY 1955, stressing contractor performance. A history of 127 contracts during a two and a half year period—written to stimulate attention to performance, delivery and cost—shows savings of 3.5% on a \$6.3-billion target volume.

Grumman Amphibian Is New ASW Unit

Grumman's SA-16 Albatross is being modified for use as an ASW (anti-submarine warfare) aircraft.

Modification is being performed through the USAF under terms of a \$1.6-million Military Assistance Program contract.

Albatross will carry modern search and detection equipment. In addition to sonobuoys and air-to-surface radar, it will utilize MAD (magnetic anomaly detection) boom and ECM (Electronic Counter Measures) equipment.

It will perform both the "hunter"

and "killer" missions in ASW, carrying depth bombs, torpedoes, and rockets.

The Albatross has the distinction of being the first aircraft adopted by the Armed Forces after unification in 1948. It made its first flight in October, 1947.

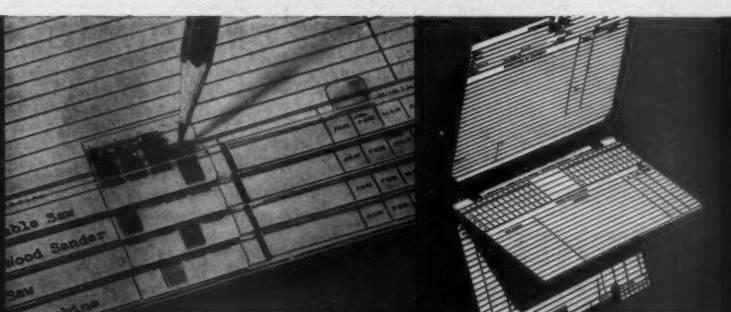
It has since become famous as the main tool of the Air Force Air-Sea Rescue Service. In the Korean War the Albatross was responsible for saving the lives of more than 300 men. It is capable of operating on land, water, ice, or snow.

Army's Air Arm Aimed At Gap Areas

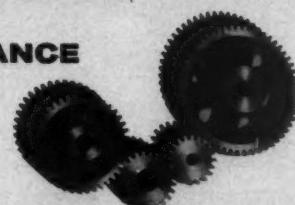
Brig. Gen. Clifton von Kann, director of Army Aviation, told the Aero Club of Washington that "Army's expanding use of aircraft is directed toward areas where no aviation capacity exists."

"Rather than create another 'air corps' within the Army, our aviation capability is being distributed at combat and command levels throughout the entire Army structure. Nor does this imply that our plans call for taking over some of the Air Force TAC missions," von Kann said.

He went on to say that progress in making the Army airborne on an or-



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ganic basis figures in our plans for the next decade in three areas: development of a light, four-place turbine helicopter to replace Army's fast obsolescing fleet of observation aircraft; development of a surveillance aircraft with greater capacity than the Mohawk; and achievement of a V/STOL transport to either replace the Caribou-Chinook team or to supplement it.

"We expect every division commander to be able to move at least a company of infantry in one lift with his organic aircraft. In achieving this end we'll need a steadily increasing corps of pilots. But arbitrary reductions are stalemating the Army's efforts toward adequate aid mobility.

"This year alone, we'll be forced to move more than 100 pilots from flying status even though they are fully qualified and we have requirements that exceed that number," von Kann said.

New Missile Wing Activated In Utah

The 4062nd Strategic Missile Wing—the Air Force's first mobile Minuteman missile unit—was activated at

Hill AFB, near Ogden, Utah, last month.

The wing, part of SAC's 22nd Air Division which is headquartered at Malmstrom AFB, Mont., will be assigned two squadrons in 1962. The two strategic missile squadrons will be designated the 752nd and 753rd.

Personnel initially assigned to the 4062nd will participate in the development of the mobile Minuteman missile program and initiate a training program for those to be assigned to the operational squadrons.

The 4062nd Wing will man trains equipped with the Minuteman over the nation's railroad system. A series of tests conducted earlier this year proved the feasibility of the roving rail-car launchers.

U.S. Needs Boost In Space Spending

Dr. A. M. Zarem told a recent American Rocket Society convention in Washington that "the conquest of space should be made a national goal during the next decade if the U.S. is to achieve a lasting peace. To do this, the effort needed can't be funded on the basis of classical economics."

Zarem, President of Electro-Optical

Systems, went on to say that "we need a ten-fold increase in the magnitude of our spending for space during the next decade, with science and technology assuming political impact over-riding the traditional influences of Wall Street and the government."

He went on to say "human resources have been too often ignored in our conventional approach to space conquest. Government must consider the conquest of space as co-equal with the necessity for building dams, roads and harbors or even conquering cancer."

Zarem noted that nuclear advances to provide space propulsion have been held back in the nation's present economy by advanced development of available fuel resources such as coal and petroleum.

Asked whether a ten-fold funding increase for space exploration should be immediate, Zarem replied: "Of course not." He said increases in spending should be gradual, bearing in mind the dangers of a crippling inflation. But the big need is for "patient money"—investment not based on the need for foreseeable or immediate profits as our economic system now views them.

AMC To Tighten Purse Strings

If anyone is to tighten AMC's purse strings, they want to be the first to do it. Here is a preview of a procurement efficiency analysis that may be presented by the Air Materiel Command in the next session of Congress.

These are stream-lined concepts in Air Force procurement policy, contractor pricing, contract management and review, and make-or-buy policies—specifically relating to small business.

AMC's Directorate of Procurement and Production has given an outline of action to tighten up all aspects of procurement which demonstrates mounting AF concern in this area, aimed at avoiding another across-the-board cut (totaling 3%) in procurement appropriations, slapped on the three services by Congress for FY 1961.

The Capitol Hill action was taken to "promote a tightening of all military procurement" which Congress and GAO continue to regard as needlessly wasteful.

In the procurement policy area, AMC is seeking to increase industry competition in the hope of reducing costs in its replenishment spare parts program. To buy spares competitively, adequate data must be readily available and used to screen out items that lend themselves to breakout for competitive bidding and production.

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Newsletter

Armed Forces Management Association
Washington 25, D.C. Phone: OTis 4-7193

National President: Hon. George H. Roderick

The National Officers of AFMA extend best wishes to the Membership including our friends from industry, for the year ahead. The past season has been a rewarding experience for all of us in our mutual effort toward better defense through management improvement.

National Conference Schedule

Theme: "Good Management—Key to Survival."

All events will be held in the Shoreham Hotel, except as noted. Dates and times firm; speakers subject to confirmation.

Tuesday, 28 February 1961

8:00: Registration—West Lobby. (Also evening of 27th) Visits to Industry Exhibits.

9:00: Business Session—Main Ballroom. (All members are invited to attend.)

10:00: Chapter Programs Session—Moderator: Colonel James L. Tarr, USAF, National V. P. (Chapters). (Delegates will discuss problems and submit ideas to improve chapter operations.)

12:00: Lunch—Informal. Visit to exhibits.

1:30: General Session, Opening Ceremony—Ballroom. Call to Order: Hon. George H. Roderick.

1:35: Invocation: Chaplain T. P. Finnegan, Maj. Gen. USAF.

1:40: Introduction of National Officers: Vice Admiral Harry E. Sears, USN Ret.

1:45: Welcome Address: Robert E. McLaughlin, President of the Board of Commissioners, District of Columbia.

2:00: Keynote Address: The Secretary of Defense.

2:30: Break. Demonstration of Exhibits.

3:00: Educational Programs Session—Ballroom. Moderator: Vice Adm. O. S. Colclough, USN Ret. Dean of Faculty, George Washington Univ.

3:10: Army: Commandant, National War College.

3:40: Navy: Chief, Navy Management Office.

Break. Demonstration of Exhibits.

4:20: Air Force: Superintendent, Air Force Acad.

4:50: Civilian: Admiral Colclough.

6:30: Reception—Army & Navy Club, Farragut Sq.

Wednesday, 1 March, 1961

8:00: Visit to Exhibits.

9:00: Departmental Programs Session—Ballroom. Moderator: Lt. Gen. Roscoe C. Wilson, USAF, National Vice President, AFMA.

9:10: Sec Def: Assistant Secretary (S. & L.) Subj.: Defense Supply Management.

Exec. Vice Pres.: VAdm. Harry E. Sears, USN, ret.

9:40: Army: Secretary of the Army. Subj.: "A Program of Management Improvement, Army."

10:10: Break. Demonstration of Exhibits.

10:40: Navy: Secretary Navy. Subj.: "A Program of Management Improvement, Navy and Marine Corps."

11:10: Air Force: Secretary Air Force. Subj.: "A Program of Management Improvement, Air Force."

11:40: Lunch Recess and Visits to Exhibits.

1:30: Special Presentations—Ballroom. Moderator: Eldon E. Sweezy, Dept. of the Army, National V.P. (Publications) AFMA.

1:40: Lt. Gen. Arthur G. Trudeau, R. & D. Army. Subj.: "Improving the R & D Process."

2:10: Edmund D. Dwyer, Chief Navy Mgmt. Off. Subj.: "Good Management—An All Hands Job."

2:40: Break. Demonstration of Exhibits.

3:10: Col. James L. Tarr. Subj.: "Paperwork Management Can Save Big Money."

3:40: Maj. Gen. Alpha L. Bowser, HQ, USMC. Subj.: "Managing the Military Installations."

4:10: Chairman, Civil Service Commission. Subj.: "Strengthening the Civil Service System."

National Award Banquet—Bolling Air Force Base Officer's Open mess.

6:30: Reception.

8:00: Dinner.

Toastmaster: Vice Adm. Harry E. Sears.

Invocation: Ch. F. A. Tobey, Maj. Gen., USA.

Distinguished Guest Speaker: Hon. Henry M. Jackson, Senator from Washington.

Presentation of Awards: Hon. George H. Roderick, National President AFMA.

Musical Program: U.S. Air Force Band, String Ensemble.

Closing Remarks by the President.

Thursday, March 2, 1961

9:00: Industry Program Session—Ballroom. Moderator: Mr. Howard Hyde, OSD, National V. P. (Plans) AFMA.

9:05: Mr. Harold F. Smitty, Vice President General Electric Corporation.

9:35: Mr. D. G. Malcolm, Vice President, Operations Research, Inc.

10:05: Break. Demonstration of Exhibits.

10:25: Dr. Herbert Robinson, President, Coir, Inc.

11:05: Mr. Sterling Livingston, President, Harbridge House.

11:25: Reading of Resolutions—Howard Hyde.

Benediction: Ch. G. A. Rosso, Rear Adm., USN

12:00: Conference Adjourns. Exhibits will be open to conferees and the general public until 6:00 PM.

In My Opinion

Marine Corps Comment

I have read with avid interest your most comprehensive coverage of "Defense Organization" in the November 1960 issue of ARMED FORCES MANAGEMENT. Let me commend you on the objective, nonpartisan approach to the subject.

In the pictorial chart on pages 32 and 33, I notice you include General David Shoup among the Joint Chiefs of Staff.

On pages 34 and 35 is a profile of General Lyman L. Lemnitzer, Chairman of the Joint Chiefs of Staff; on pages 38 and 39 a profile of General George H. Decker, Army Chief of Staff; on pages 42 and 43 a profile of Admiral Arleigh A. Burke, Chief of Naval Operations; and on pages 46 and 47 a profile of General Thomas D. White, Air Force Chief of Staff.

My copy is missing those pages devoted to the profile of the Commandant of the Marine Corps. Would you be so kind as to forward me these missing pages, inasmuch as I intend to keep this issue as a ready reference and naturally under these circumstances, would like to have it complete.

Maj. Gen. J. M. Masters
U. S. Marine Corps

May we plead a legalism? Gen. Shoup's profile was not included because he is not a full time member of the Joint Chiefs and meets with them only on matters pertaining to the Marine Corps. We grant you that this is a bit feeble—thus, we plan a profile on Gen. Shoup in the near future.—Ed.

"Well Done" from Navy

I want to express our pleasure in your entire November 1960 issue of ARMED FORCES MANAGEMENT and especially our appreciation for your Supply and Logistics article, "Where the Money Can Be Saved." Yours is an excellent example of alert interpretive journalism.

Too long neglected, the military Supply and Logistics story is big, complex and, above all, important. It is important not only in terms of national security, but as you so well pointed out, where it hits us the hardest—in the region of the pocketbook.

Personally, I would have suggested some mention of Navy Supply pioneering in automated materials handling, in mathematical decision rules, or a word or two regarding the countless research and development triumphs in food, clothing, supply engineering and other logistic support areas where advances are bringing big payoffs in

better use of facilities and personnel.

In any case, congratulations and a "well done" indeed for a fine article and an outstanding issue. We'd like to see more of them and have our doors open for any assistance we can give.

RAdm. J. W. Boundy

Chief
Bureau of Supplies and Accounts

Red Face Dep't

. . . We feel entitled to an explanation (re: Organization of the Defense Department?, page 72, November ARMED FORCES MANAGEMENT) seeing that the chart really did come to us in the mail, that we supplied the artwork and that our Fred Philips wrote the caption, including one sentence that was deleted from your version. We further feel entitled to an explanation to your readers via your magazine columns in a future issue.

John F. Loosbrook

Editor
Air Force Magazine

Ouch. The chart in question was given to us as a typed and handwritten document on a plain white piece of paper by an officer in the Pentagon. His implication in giving the chart was that it had been drawn up in the Pentagon. Coming to us in this way, we simply overlooked the possibility that it had been used before in another publication. Certainly, if we had known the chart was yours, we would have given appropriate credit at the time, rather than in this after-the-fact fashion.—Ed.

Advanced Managers

. . . It would be sincerely appreciated by the members of the Air Force Advanced Management Program at George Washington University if . . . copies of the November issue of the ARMED FORCES MANAGEMENT magazine could be made available to us.

This particular issue has been recommended as required reading in our class on American Military Policy which is taught by Dr. Timothy Stanley.

Lt. Col. C. E. Buckingham
U.S. Air Force

Industry Comments

Your current issue, which describes the Department of Defense, is being widely read with great interest by all of the people in our marketing section. This is one of the most comprehensive reports on this complex organization

that we have seen in a long time, and your staff is to be highly complimented for an excellent editorial job . . .

W. S. Cahill

Heavy Military Electronics Dep't
General Electric Co.

. . . I have recommended to two classes at Boston University, of middle-management people taking an evening course in Government and Military Procurement, to whom I was asked to speak, that they get and read your November, 1960 issue and consider permanently subscribing . . .

E. F. Leathem

Raytheon Company

Oversight Seen

After reading your editorial "1960: Year of the Donnybrooks" in the November issue of ARMED FORCES MANAGEMENT magazine, I looked forward with interest to reviewing the articles which had resulted from the activity of your staff during the past year. I was not disappointed.

The timely and cogent information presented could not help but stimulate serious thought to future events. However, I believe that a significant area of interest to our Armed Forces managers was touched upon somewhat lightly. I am referring to the single management area which involves common services that are used jointly by the various military departments.

Three of today's single managers are "service" single managers; MTMA—Traffic Management, MATS—Air Transportation, and MSTS—Ocean Transportation. Although your coverage of commodity single managers was thorough, the omission of significant information on the development and status of the service single managers detracted somewhat from the otherwise excellent coverage given to the Single manager programs . . .

VAdm. Roy A. Gano
Commander
Military Sea Transportation Service

Although we certainly don't like to get caught off base, when being caught gets a top-notch story idea, it's easier to take. Watch for a story on these in the near future.—Ed.

Disappearing Decimal Point

In the September issue of ARMED FORCES MANAGEMENT, you published an article written by me. This I appreciate.

In a caption over an illustrative drawing, your caption writer apparently misplaced a decimal point. He said that "Savings of nearly \$500-million resulted from one missile transportation program at GE." (The italics

are mine). We at MSVD admit that our people are good, but not quite that good.

In the first paragraph at the top of the article, the savings are correctly stated as \$481-thousand. Actually, additional savings have since boosted this total to \$1.2-million . . .

G. H. Jacobsen

Cost Improvement Specialist
Missile & Space Vehicle Dep't
General Electric Co.

AFM Staffers are always impressed by a program such as the one cited in this article. But occasionally we get carried away . . . —Ed.

National Suicide Kudo

. . . It is an incisive analysis and has interesting implications as to service roles and missions. When we get time we would like to examine these points more closely.

Some of these implications were touched upon briefly in our civil defense hearings . . .

Herbert Roback

Staff Administrator
Military Operations Subcommittee
House Committee on Government Operations

Soviet Civil Defense

In reference to the article, Missiles vs. Modernization, in the November 1960 issue of your magazine.

While on the whole the article was stimulating I feel that the author made an error in one of his statements regarding Soviet Civil Defense.

In speaking of Civil Defense in the Soviet Union the author states "The USSR . . . has far exceeded the United States in the development of a program to protect Soviet citizens."

During the summer of 1959 I had an opportunity to question Soviet editors and people on the streets in Leningrad, Moscow and Kiev on this very subject, the answers were all the same, they felt no need for civilian evacuation training or fallout protection since their vaunted Air Force and Rocket Defense would protect them from all attack! (A measure of the magnitude of Mr. Khrushchev's admissions earlier this year.)

Capt. C. F. Bush

USAF

Haunted Reader

Your November issue had a few curves in the article on handling the Personnel Headache. So now these questions haunt me:

(1) Why shouldn't management expect a 2% increase in production each year with all the new techniques in

methods and personnel relationship improvement programs?

(2) What is wrong in cross training personnel to be experts in more than one assignment?

(3) What is the military establishment doing to challenge the smart professors that wean men away from the desire to fight for their birthrights in high schools?

Benjamin P. Fowler

New York City

Liked Defense Rundown

Recently I had the pleasure of reading the November 1960 issue of ARMED FORCES MANAGEMENT which contained the well-written report on the Department of Defense. This article in Volume 7, No. 2 was interesting and very newsworthy . . .

LCdr. A. C. Le Clerc

U.S. Naval Ordnance Plant
Forest Park, Ill.

Bomb Holding

Re Howard G. Kurtz' article, "Is Defense Failing Its Mission?" in October issue.

It is true that a mutual standoff is an uneasy peace. However, I must question one of Mr. Kurtz' premises, or assumptions, namely, that "We have held an atomic bomb over the head of every single Soviet man, woman and child through these years." . . .

I suggest that if any peoples or governments feel that U.S. weapons are held over their heads, their position is of their own choosing.

A line from a seemingly forgotten patriotic song, "O Columbia the Gem of the Ocean" still has validity: "Thy banners make tyranny tremble." The trick is how to eliminate tyranny as distinguished from its victims.

C. W. King

Anchorage, Alaska

The article "Is Defense Failing Its Mission?" by Howard Kurtz, in the October issue of AFM, was most interesting, even though highly incomplete . . .

Above all, as citizens of the world's finest country, let's accept the facts of life in a world where the Communist conspiracy is sworn to destroy our way of life; let's devise a strategy of victory in the cold war, knowing that the alternative is defeat; and let's stop the fuzzy thinking that we can deal with the Communists (except backed by military power) or that we can devise a brave new world, all tidy and secure, except by stopping and rolling back the Red menace.

Capt. W. E. Fly

Naval Air Training Command
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Missile Ranges

(Continued from page 17)

ments be planned ahead, and submitted as a part of the original weapon system plan.

For this, the reason is that only chaos is created at the more-than-busy ranges if someone wanders in with a missile and wants to start testing right now. Also, there is the problem of modifying the range to accommodate the new test programs.

The Problems

One measure of this: as a rule of thumb, to effectively measure the results of a given missile test, the measuring device must be roughly ten times more sensitive than the accuracy of the test results in question.

One more problem area is setting the requirements of a global operational/research and engineering space tracking net. The aim here is to do as much as is necessary with minimum cost, and one of the ways of achieving this will be through standardizing—where possible—on equipment used in the world wide net.

The problem arises where the requirements are different for the two jobs. For operational equipment, the desirable qualities would include fast response, ability to operate under adverse conditions, placement following strategic consideration.

The Qualifications

Research and engineering equipment can be used under controlled conditions, and placed without as much concern for Russian missile trajectories. It must still meet other qualifications. Volume of data is more important for R&E work, and speed of reporting can be sacrificed for this. The horns of the dilemma are, on the one hand, conflicting requirements, and on the other financial pressures dictating standardization.

Again, it boils down to a need for somebody who can stand back and take a long range look at the range and support needs of the nation. That such an office has been set up in Defense is a solid first step in the right direction. But there is still much work to be done. Obviously, how well this job is done will have a heavy effect on the success of the nation's space program.

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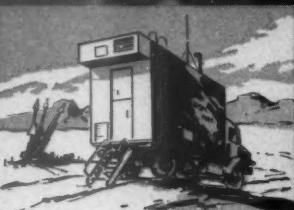
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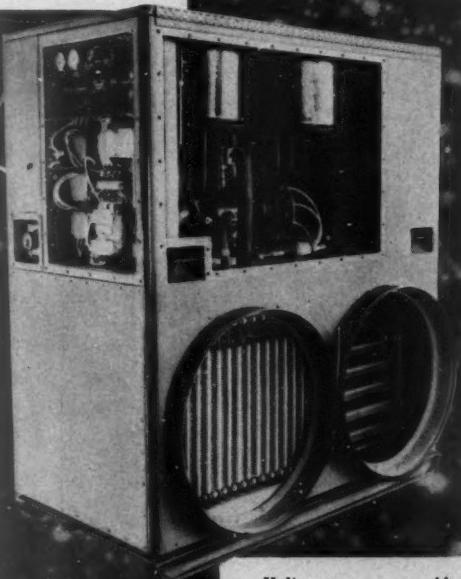
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